

SERVICE MANUAL

MD/CD STEREO
RADIO CASSETTE RECORDER

BASIC TAPE MECHANISM : 2ZM-1R7
BASIC MD MECHANISM : 7ZG-9B2
BASIC CD MECHANISM : 3ZG-3E2

TABLE OF CONTENTS

SPECIFICATIONS	3
ACCESSORIES/PACKAGE LIST	3
PROTECTION OF EYES FROM LASER BEAM DURING SERVICING	4
Precaution to replace Optical block.....	5
DISASSEMBLY INSTRUCTIONS	6-10
ELECTRICAL MAIN PARTS LIST	11-15
TRANSISTOR ILLUSTRATION	16
FL GRID ASSIGNMENT/ANODE CONNECTION	17, 18
BLOCK DIAGRAM-1 (MAIN).....	19, 20
BLOCK DIAGRAM-2 (SYSTEM CONTROL)	21, 22
BLOCK DIAGRAM-3 (MD)	23, 24
WIRING-1 (MAIN)	25, 26
SCHEMATIC DIAGRAM-1 (TUNER)	27, 28
SCHEMATIC DIAGRAM-2 (DECK).....	29, 30
SCHEMATIC DIAGRAM-3 (MAIN).....	31, 32
WIRING-2 (SYSTEM CONTROL/CD).....	33, 34
SCHEMATIC DIAGRAM-4 (SYSTEM CONTROL)	35, 36
WIRING-3 (FL/KEY)	37, 38
SCHEMATIC DIAGRAM-5 (CD)	39, 40
WIRING-4 (POWER)	41, 42
SCHEMATIC DIAGRAM-6 (FL/KEY/POWER).....	43, 44
WIRING-5 (MD)	45, 46
SCHEMATIC DIAGRAM-7 (MD)	47, 48
WIRING-6 (MECHANISM)	49, 50
TEST MODE	51-55
ELECTRICAL ADJUSTMENT/PRACTICAL SERVICE FIGURE	56-58
IC DESCRIPTION	59-71
IC BLOCK DIAGRAM.....	72-77
MECHANICAL PARTS LIST 1/1	78
MECHANICAL EXPLODED VIEW 1/1	79, 80
TAPE MECHANISM EXPLODED VIEW 1/1	81, 82
TAPE MECHANISM PARTS LIST 1/1	83
CD MECHANISM EXPLODED VIEW 1/2	84
CD MECHANISM PARTS LIST 1/2	85
CD MECHANISM EXPLODED VIEW 2/2	86
CD MECHANISM PARTS LIST 2/2	86
MD MECHANISM EXPLODED VIEW 1/3	87
MD MECHANISM PARTS LIST 1/3	87
MD MECHANISM EXPLODED VIEW 2/3	88
MD MECHANISM PARTS LIST 2/3	89
MD MECHANISM EXPLODED VIEW 3/3	90
MD MECHANISM PARTS LIST 3/3	91
SPRING APPLICATION POSITION	92
REFERENCE NAME LIST	93

SPECIFICATIONS

FM tuner section

Tuning range	87.5 MHz to 108 MHz
Antenna	Rod antenna

AM tuner section

Tuning range	522 kHz to 1611 kHz (9 kHz step) 530 kHz to 1600 kHz (10 kHz step)
Antenna	Loop antenna

CD player section

Scanning method	Non-contact optical scanner (semiconductor laser)
Frequency response	40 Hz to 20,000 Hz ± 2 dB
D/A converter	1 bit dual

Cassette deck section

Track format	4 tracks, 2 channels stereo
Frequency response	50 Hz to 12,500 Hz (normal tape)
Recording system	AC bias
Heads	Recording/playback head $\times$ 1, Erase head $\times$ 1

MD recorder section

Scanning method	Non-contact optical scanner (Semiconductor laser application)
Recording system	Magnetic polarity modulation overwrite system
Rotation speed	Approx. 400 – 900 rpm (CLV)
Sampling frequency	44.1 kHz
No. of channels	Stereo: 2 channels Monaural: 1 channel
A-D, D-A converter	1-bit
Frequency	20 – 20000 Hz ± 0.2 dB
Wow and flutter	Unmeasurable

General

Speakers	80 mm cone type (2)
Output	Headphones jack (stereo mini-jack) 16 W + 16 W (DIN MUSIC POWER) 8 W + 8 W (10% T.H.D./6 Ω) 7 W + 7 W (DIN 1% rated power)
Power output	230 V AC, 50 Hz
Power requirements	40 W
Power consumption	399 (W) $\times$ 252.5 (H) $\times$ 232 (D) mm
Dimensions	Approx. 6.2 kg
Weight	

- Design and specifications are subject to change without notice.
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- The word "BBE" and the "BBE symbol" are trademarks of BBE Sound, Inc. Under license from BBE Sound, Inc.

ACCESSORIES/PACKAGE LIST

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	8Z-CK4-952-010		RC UNIT, RC-ZAT04
2	8Z-CK3-906-010		IB, EZ(9L)I
3	87-006-240-010		AM LOOP ANT CON(K0)
4	87-A80-081-010		AC CORD SET ASSY, EZ BLK

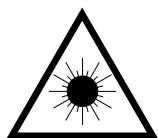


PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs laser. Therefore, be sure to follow carefully the instructions below when servicing.

WARNING!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION. BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 30cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.



- Caution: Invisible laser radiation when open and interlocks defeated avoid exposure to beam.
- Advarsel: Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

VAROITUS!

Laiteen Käyttäminen muulla kuin tässä käyttöohjeessa mainituilla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.

WARNING!

Om apparaten används på annat sätt än vad som specificeras i denna bruksanvisning, kan användaren utsättas för osynlig laserstrålning, som överskrider gränsen för laserklass 1.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

ATTENTION

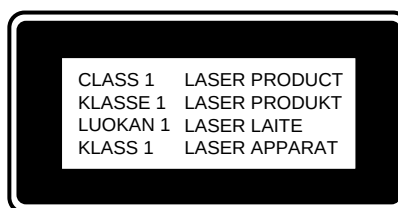
L'utilisation de commandes, réglages ou procédures autres que ceux spécifiés peut entraîner une dangereuse exposition aux radiations.

ADVARSEL!

Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

This Compact Disc player is classified as a CLASS 1 LASER product.

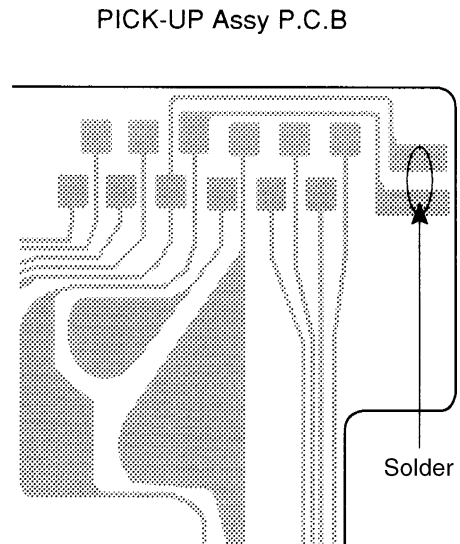
The CLASS 1 LASER PRODUCT label is located on the rear exterior.



Precaution to replace Optical block (KSS-213F)

Body or clothes electrostatic potential could ruin laser diode in the optical block. Be sure ground body and workbench, and use care the clothes do not touch the diode.

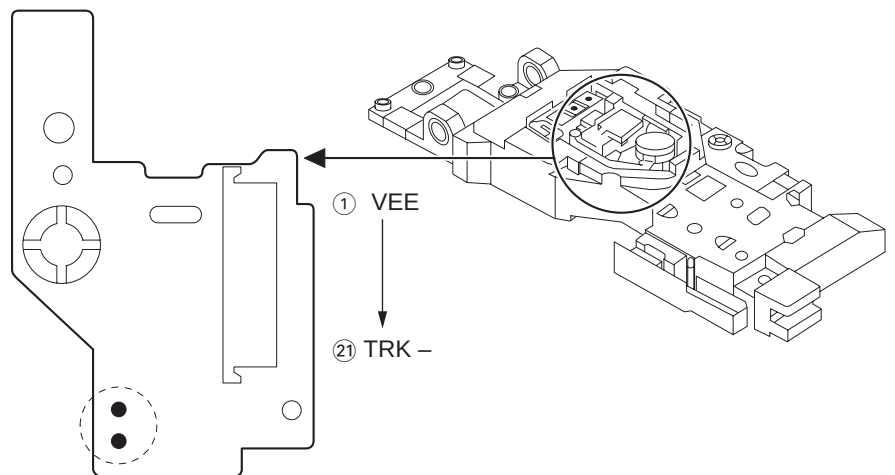
- 1) After the connection, remove solder shown in the right figure.



Precaution to replace Optical block (KMS-260A)

Body or clothes electrostatic potential could ruin laser diode in the optical block. Be sure ground body and workbench, and use care the clothes do not touch the diode.

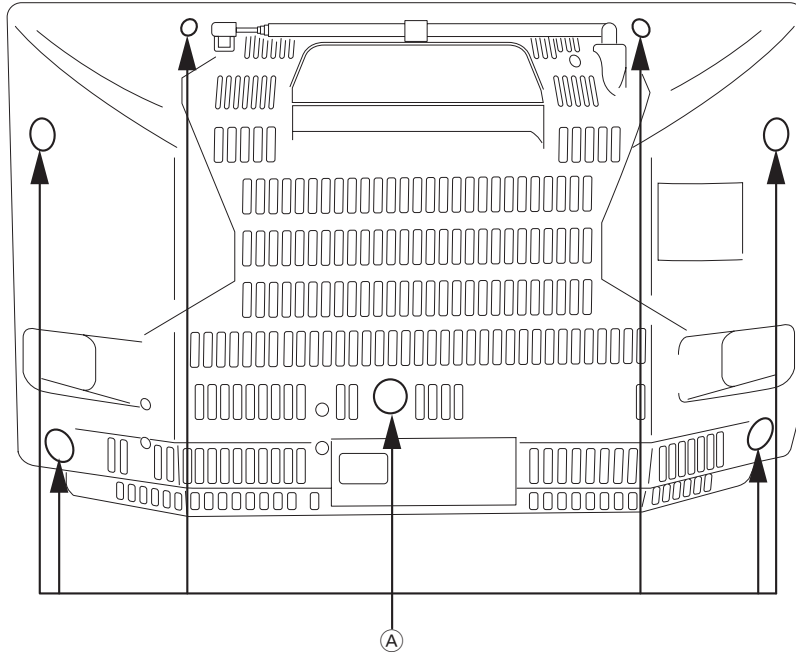
- 1) After the connection, remove solder shown in the right figure.



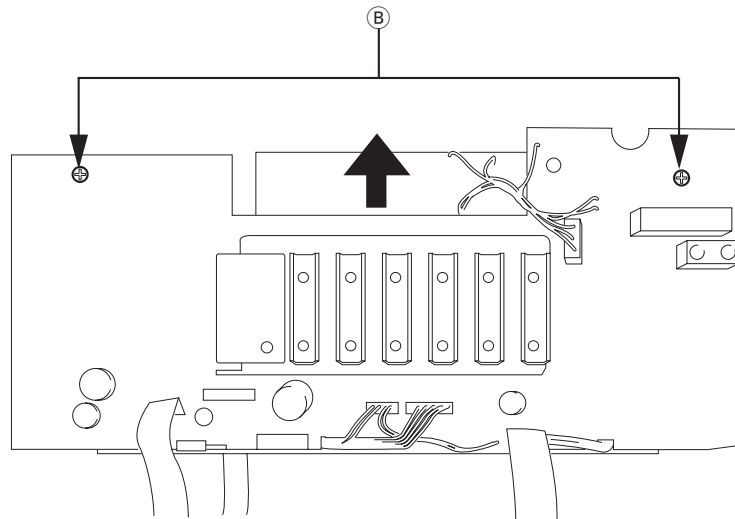
DISASSEMBLY INSTRUCTIONS

Disassembling Procedure

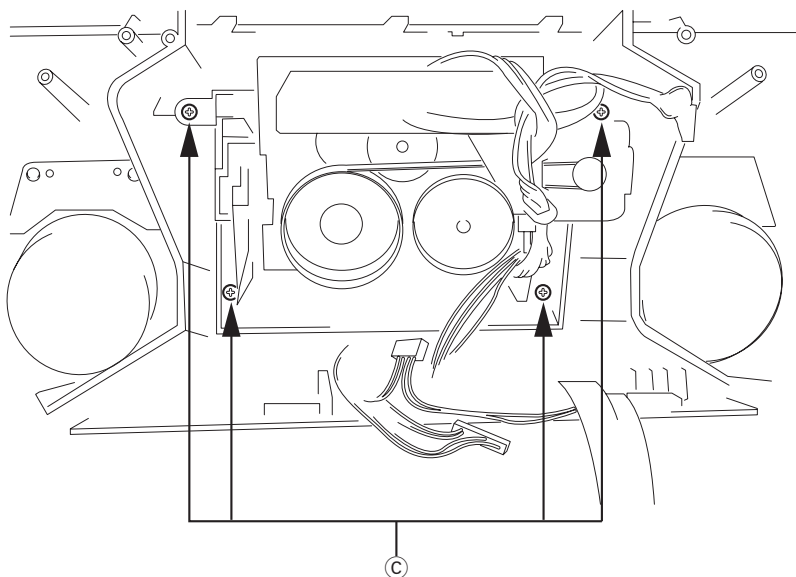
1. Remove the seven screws (A) BVT2+3-18X7) and remove the rear cabinet.



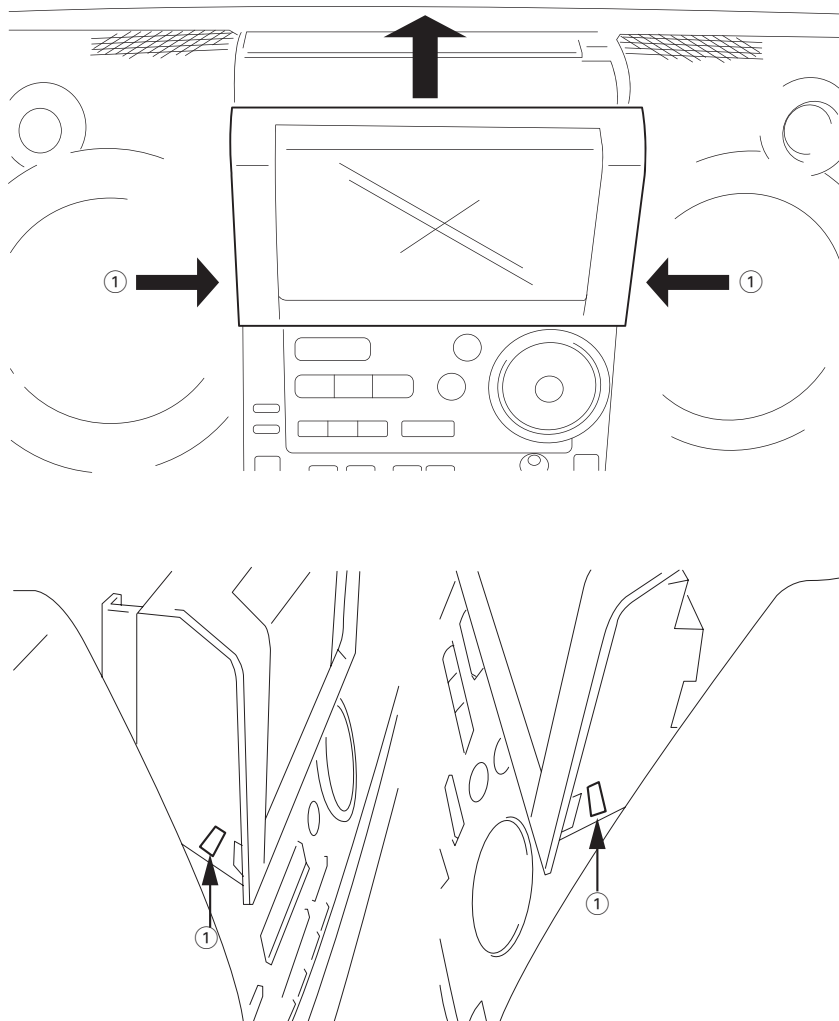
2. Remove the two screws (B) BVT2+3-12X2). Remove the MAIN C.B by pulling it upward.



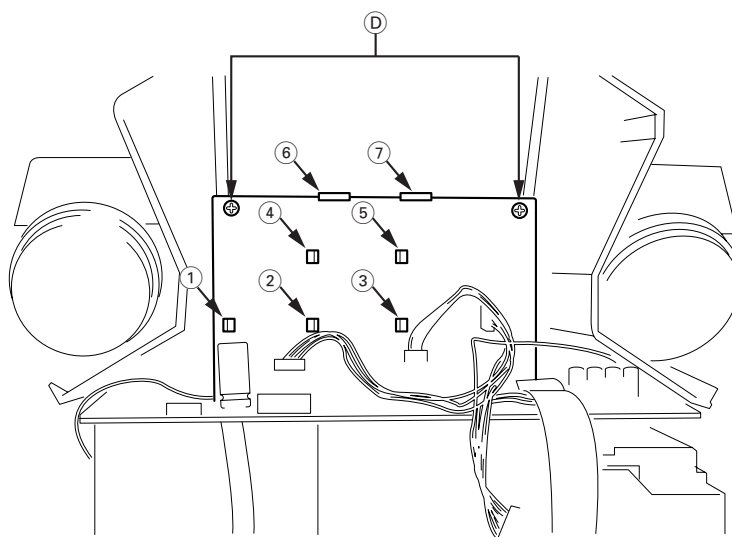
3. Remove the four screws (C) BVT2+3-12X4).



4. Open the deck lid. Release the two claws ① and remove the PANEL DISP by pulling it upward.

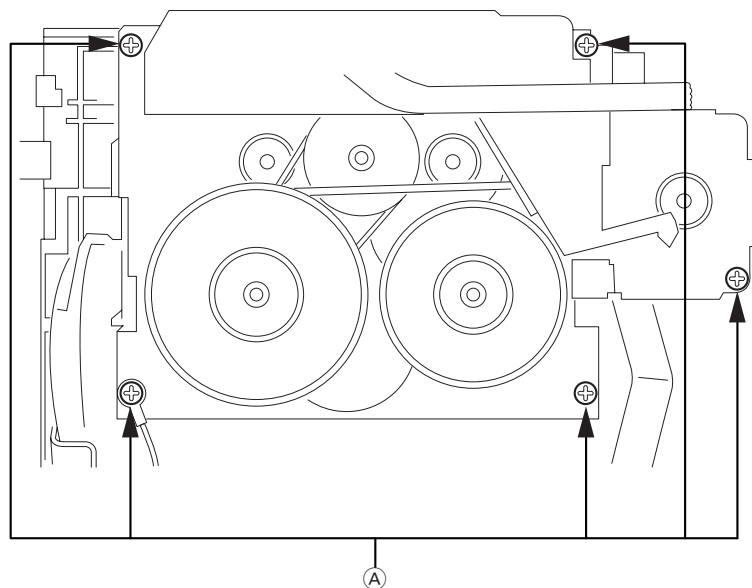


5. Close the deck lid. Raise the deck block from the rear.
6. Remove the two screws (Ⓢ BVT2+3-12X2). While raising the MAIN C.B., release the claws starting from ① to ⑦, and remove the MICOM/CD C.B.

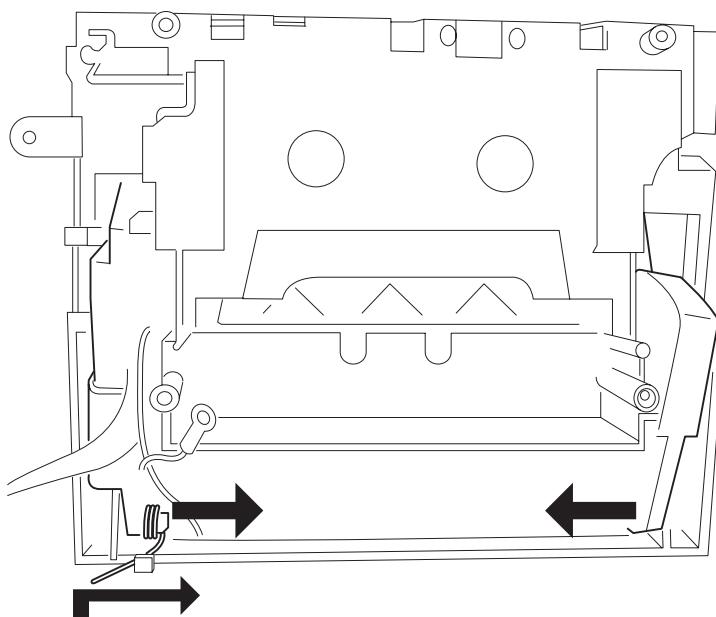


7. How to remove the COVER, FFC.

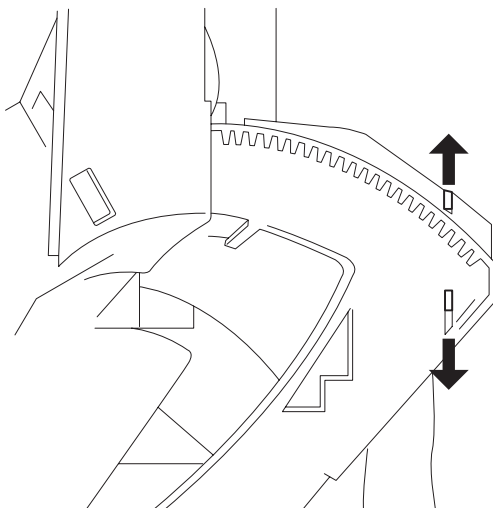
- 1) Remove the five screws (A) BVT2+3-12X5) and remove the deck mechanism.



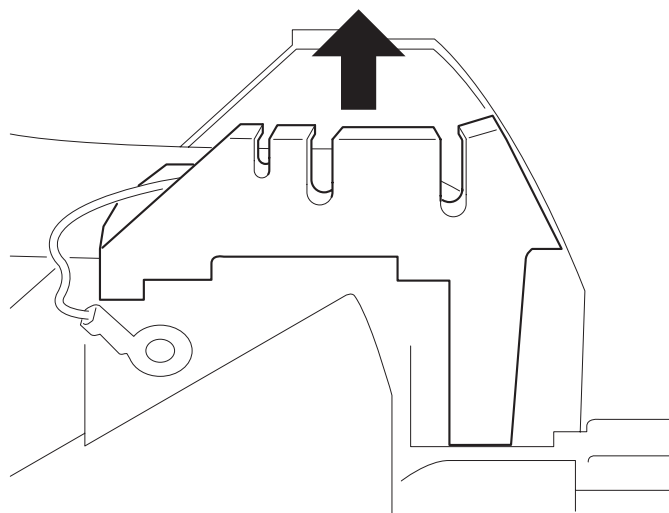
- 2) Remove the SPR T CASS from the rib and remove the BOX CASS.



- 3) Release the two claws of the COVER and FFC by pressing them in the direction of the arrow.

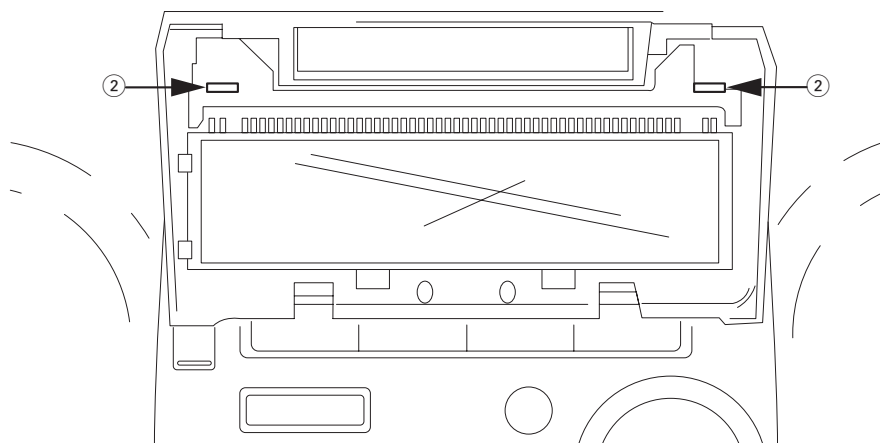


- 4) Raise the COVER and FFC in the direction of the arrow, and remove them.



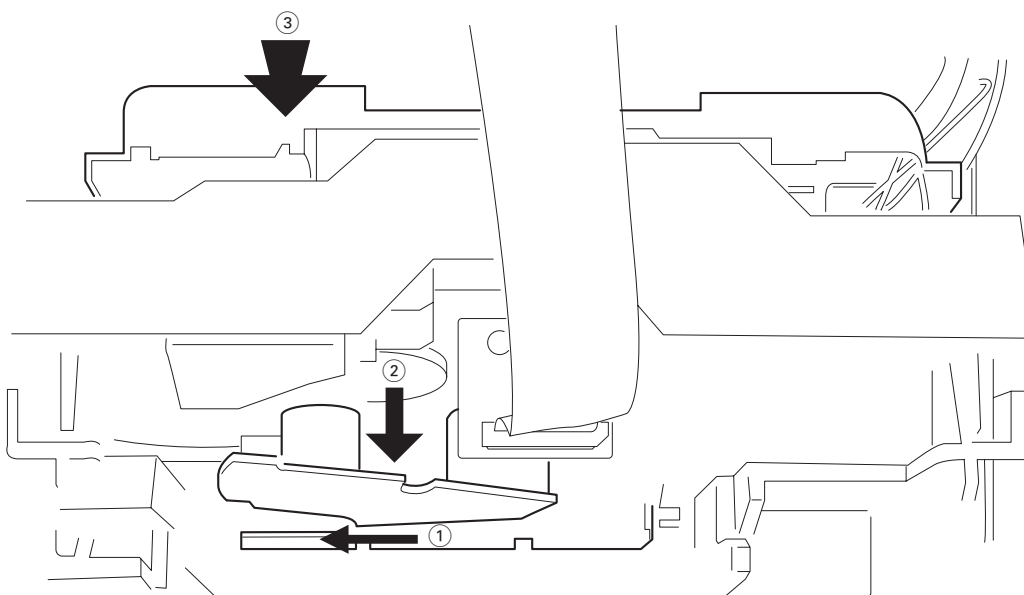
8. How to remove FL C.B.

- 1) Release the two claws ② and pull the top of the FL C.B. to the front. The FL C.B. can be removed.



9. How to remove the CD panel

- 1) Move the CAM SLIDE by 1 cm to the left.
2) Move down the DRIVE C.B. and establish the “un-chucking” status.
3) Press TRY, CD2 twice.



10. Remove the four screws (A) (S-SCREW, MD) and screws (B) (BVTT +3-6).
Remove the four FFCs from the connector, and remove the MD MECHANISM in the direction of the arrow. (Fig-1)

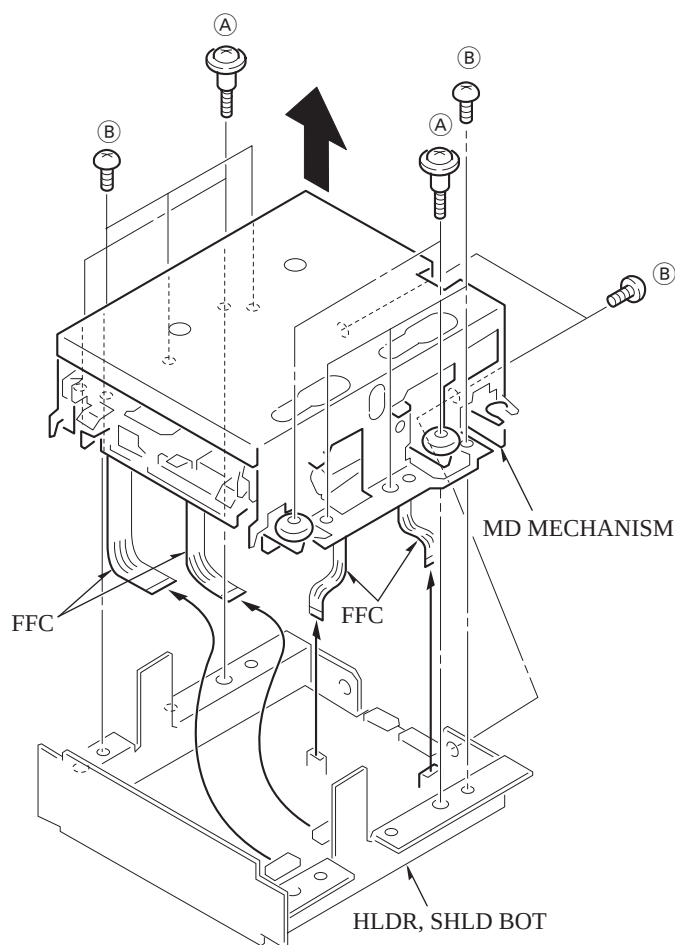


Fig-1

11. Remove the HLDR and SHLD TOP in the direction of the arrow. (Fig-2)

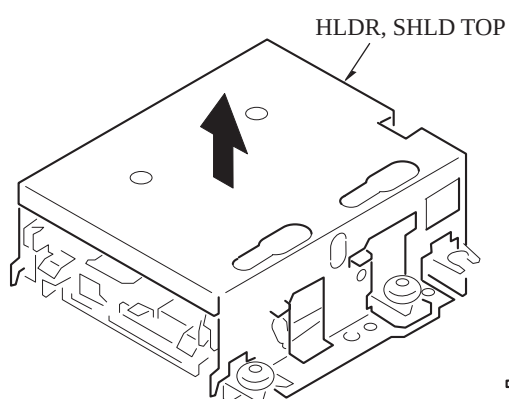


Fig-2

12. Remove the two screws (C) (VTT +2-4), and remove the PLATE ASSY, SIDE L, PLATE, and SIDE R in the direction of the arrow.
Remove the screw (D) (VW +1.7-5 w/o MFZN2C), and remove the HEAD and OWH RF325-74A in the direction of the arrow. (Fig-3)

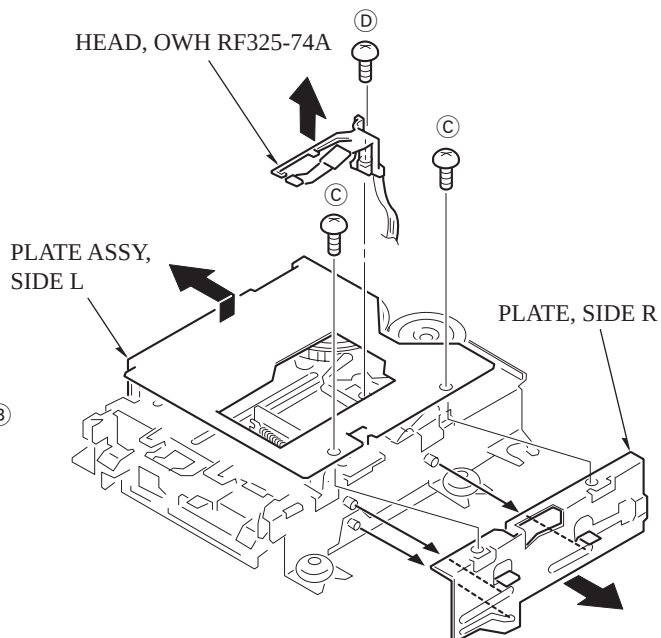


Fig-3

13. Open the 7ZG-3 A2 in the direction of the arrow (a), remove the BOSS by pressing it gently in the direction of the arrow (b), and remove the 7ZG-3 A2 in the direction of the arrow (c). (Fig-4)

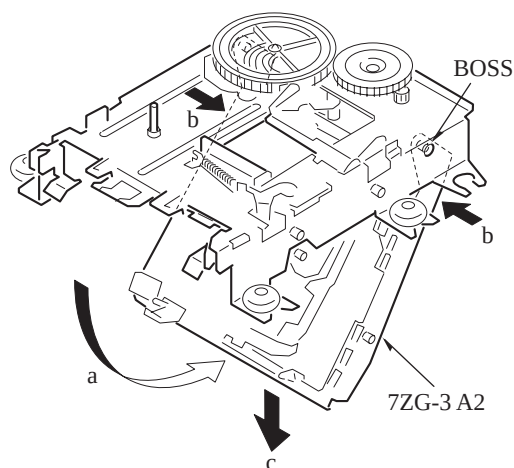


Fig-4

Note During Assembling:

Rotate the gear fully in the direction of the arrow, and assemble the main cam into the specified position as shown by the illustration. (Fig-5)

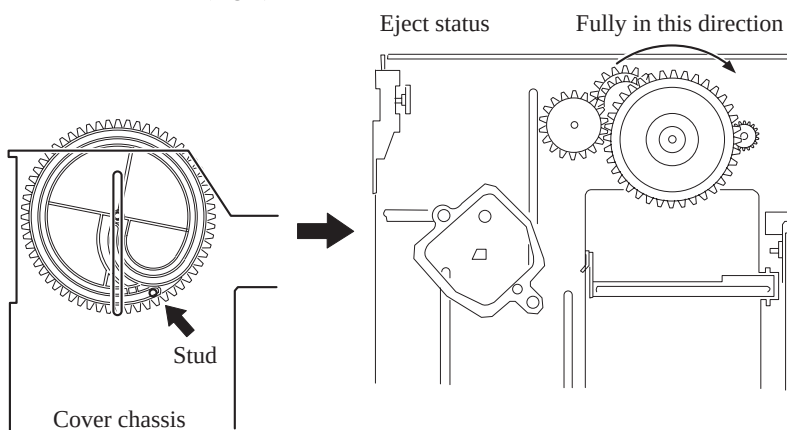


Fig-5

ELECTRICAL MAIN PARTS LIST

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
IC					87-020-465-080		DIODE,1SS133 (110MA)
					87-A40-348-080		ZENER,MTZJ3.3A
					87-A40-256-080		DIODE,RB441Q-40T-72
					87-001-166-080		DIODE,1SS301
					87-A40-412-040		C-DIODE,SB05-05CP
	87-020-454-010	IC,DM6851		MAIN C.B			
	87-A20-707-010	C-IC,CXA2523AR					
	87-A20-708-010	C-IC,CXD2652AR					
	87-A20-709-040	C-IC,BD7910FV					
	87-ZG9-601-010	C-IC,CXP81952					
	87-ZG9-605-110	C-IC,CXP81952-521R					
	87-ZG9-607-010	C-IC,CXP81952M-523R					
	87-ZG9-608-010	C-IC,CXP81952M-547R					
	87-ZG9-606-040	C-IC,MN41V4400SJ-08					
	87-A20-755-080	C-IC,AK93C45AF					
	87-A20-710-040	C-IC,S-8110AMP					
	87-A20-711-040	C-IC,BA5970FP					
	87-A20-712-040	C-IC,BA6417F					
	87-A20-698-080	C-IC,AK4512VF					
	87-A21-110-040	C-IC,AK4519VF					
	87-017-853-040	IC,NJM2100V					
	87-A20-797-040	C-IC,NJU7221U30					
	87-A20-798-040	C-IC,NJU7221U35					
	87-A20-714-040	C-IC,NJM2370U33					
	87-A21-176-010	C-IC,LC75710NE					
	87-A21-218-010	IC,NJL64H380A					
	87-A21-211-010	IC,BA178M06T					
	8Z-CK3-620-010	C-IC,LC875164A-****					
	87-A20-976-040	C-IC,TC74HCT7007AF					
	87-A21-159-040	C-IC,AK93C65AF(4K)					
	87-A21-281-080	IC,PST9125-T					
	87-A20-446-010	C-IC,LA9241ML					
	87-A20-459-010	C-IC,LC78622ED					
	87-A20-445-010	IC,BA5936					
	87-A21-213-010	IC,BA17808T					
	87-A21-212-010	IC,BA17805T					
	87-A20-909-010	IC,LA4663					
	87-A21-116-040	C-IC,BH3862FS					
	87-A21-103-040	C-IC,MM1454XFBE					
	87-A20-419-010	IC,TA2068N					
	87-A21-210-010	IC,LC72121					
	87-A20-913-010	IC,LA1837NL					
TRANSISTOR							
	89-318-155-080	TR,2SC1815 (0.4W)					
	87-026-447-080	TR,2SC1740S R					
	87-026-223-080	TR,DTC143TK					
	89-109-521-080	TR,2SA952 (0.6W)					
	87-026-610-080	TR,KTC3198GR					
	87-026-372-080	TR,RN1210					
	87-026-463-080	TR,2SA933S (0.3W)					
	87-026-609-080	TR,KTA1266GR					
	89-113-187-080	TR,2SA1318TU					
	87-026-245-080	TR,DTC114ES					
	89-406-555-080	TR,2SD655 (0.5W)					
	87-026-464-080	TR,DTC114TS (0.3W)					
	89-327-143-080	TR,2SC2714 (0.1W)					
	87-A30-072-080	C-TR,RT1P 144C					
	87-026-423-080	C-TR RN2305					
	89-115-884-080	CHIP -TRANSISTER 2SA1588Y					
	89-341-164-080	CHIP-TRANSISTOR,2SC4116 Y					
	87-026-412-080	C-TR RN1305					
DIODE							
	87-017-447-010	DIODE,GBU4DL					
	87-070-274-080	DIODE,1N4003 SEM					
	87-A40-657-080	ZENER,MTZ J 13A					
	87-A40-488-080	DIODE,1SS244					
	87-A40-534-080	ZENER,MTZJ39A					
	87-017-090-080	ZENER,HZS5B3					
	87-070-136-080	ZENER,MTZJ5.1B					

REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
C315	87-010-248-080		CAP, ELECT 220-10V	CN302	87-099-668-010		CONN,9P TUC-P 9P-B1
C316	87-010-178-080		CHIP CAP 1000P	CN303	87-099-567-010		CONN,10P TUC-P10P-B1
C317	87-012-368-080		C-CAP,S 0.1-50 F	CN304	87-A60-422-010		CONN,8P V TOC-B
C321	87-012-153-080		C-CAP,S 120P-50 CH	CN306	87-099-749-010		CONN,9P V 9604SC
C322	87-012-153-080		C-CAP,S 120P-50 CH	CN308	87-A60-845-010		CONN,6P TRC-X06P-A2
C323	87-012-153-080		C-CAP,S 120P-50 CH	CN309	87-A60-920-010		CONN,8P TRC-X08P-A2
C324	87-012-368-080		C-CAP,S 0.1-50 F	CN312	87-A60-685-010		CONN,4P H WHT EH
C325	87-012-368-080		C-CAP,S 0.1-50 F	CN500	87-A60-424-010		CONN,16P V TOC-B
C326	87-010-375-080		CAP, ELECT 330-10V	CN501	87-A60-061-010		CONN,06P V 9604S-06C
C327	87-010-379-080		CAP, ELECT 22-16V	CN502	87-A60-062-010		CONN,05P V 9604S-05C
C328	87-010-247-080		CAP, ELECT 100-50V	CNA301	8Z-CK3-619-010		CONN ASSY,7P V WHT H.P
C329	87-012-369-080		C-CAP,S 0.047-50F	CNA401	8Z-CK3-616-010		CONN ASSY,9P V WHT CASS
C330	87-010-406-080		CAP, ELECT 22-50	J201	87-A60-420-010		JACK,3.5 ST (MSC)
C331	87-010-406-080		CAP, ELECT 22-50	JW213	87-003-219-010		FERRITE BEAD-BL02RN2
C355	87-010-190-080		S CHIP F 0.01	JW214	87-003-219-010		FERRITE BEAD-BL02RN2
C357	87-010-405-080		CAP, ELECT 10-50V	JW238	87-003-149-080		COIL,47UH
C500	87-010-382-080		CAP, ELECT 22-25V	JW284	87-003-149-080		COIL,47UH
C501	87-010-401-080		CAP, ELECT 1-50V	JW285	87-003-149-080		COIL,47UH
C502	87-010-545-080		CAP, ELECT 0.22-50V	JW286	87-003-149-080		COIL,47UH
C503	87-012-157-080		C-CAP,S 330P-50 CH	JW238	87-003-149-080		COIL,47UH
C510	87-010-374-080		CAP, ELECT 47-10V	SFR501	87-024-176-080		SEMI-FIXED RESISTOR, 100K
C511	87-010-197-080		CAP, CHIP 0.01 DM	X301	87-030-273-010		VIB,XTAL 32.768K5PPM
C512	87-010-248-080		CAP, ELECT 220-10V	X302	87-A70-070-080		VIB,CER 5.76MHZ CRHF
C514	87-010-544-080		CAP, ELECT 0.1-50V	X501	87-A70-166-080		VIB,CER 16.93MHZ MXZ140 0.3%
C515	87-010-198-080		CAP, CHIP 0.022				
C516	87-010-263-080		CAP, ELECT 100-10V	KEY C.B			
C518	87-010-405-080		CAP, ELECT 10-50V				
C519	87-010-263-080		CAP, ELECT 100-10V	C318	87-018-209-080		CAP, CERA-SOL 0.1
C520	87-010-197-080		CAP, CHIP 0.01 DM	C319	87-018-209-080		CAP, CERA-SOL 0.1
C521	87-010-374-080		CAP, ELECT 47-10V	C320	87-010-374-080		CAP, ELECT 47-10V
				C370	87-018-209-080		CAP, CERA-SOL 0.1
C523	87-010-176-080		C-CAP,S 680P-50 SL	C371	87-018-209-080		CAP, CERA-SOL 0.1
C525	87-010-186-080		CAP,CHIP 4700P				
C526	87-010-400-080		CAP, ELECT 0.47-50V	CN310	87-A60-846-010		CONN,6P TRC-X06X-A2
C527	87-012-156-080		C-CAP,S 220P-50 CH	CN311	87-A60-921-010		CONN,8P TRC-X08X-A2
C529	87-012-140-080		CAP 470P	D306	87-A40-664-080		LED,SEL6214S RED
				D307	87-A40-664-080		LED,SEL6214S RED
C530	87-010-374-080		CAP, ELECT 47-10V	D308	87-A40-664-080		LED,SEL6214S RED
C531	87-010-401-080		CAP, ELECT 1-50V				
C532	87-010-184-080		CHIP CAPACITOR 3300P(K)	D309	87-A40-664-080		LED,SEL6214S RED
C533	87-010-196-080		CHIP CAPACITOR,0.1-25	D310	87-A40-664-080		LED,SEL6214S RED
C534	87-010-221-080		CAP, ELECT 470-10V	S301	87-A91-024-080		SW,TACT KSH0611BT
				S302	87-A91-024-080		SW,TACT KSH0611BT
C545	87-010-404-080		CAP, ELECT 4.7-50V	S303	87-A91-024-080		SW,TACT KSH0611BT
C549	87-010-314-080		C-CAP,S 22P-50V				
C552	87-010-196-080		CHIP CAPACITOR,0.1-25	S304	87-A91-024-080		SW,TACT KSH0611BT
C554	87-012-154-080		C-CAP,S 150P-50 CH	S305	87-A91-024-080		SW,TACT KSH0611BT
C555	87-010-196-080		CHIP CAPACITOR,0.1-25	S306	87-A91-024-080		SW,TACT KSH0611BT
				S307	87-A91-024-080		SW,TACT KSH0611BT
C556	87-010-248-080		CAP, ELECT 220-10V	S308	87-A91-024-080		SW,TACT KSH0611BT
C557	87-010-405-080		CAP, ELECT 10-50V				
C558	87-010-405-080		CAP, ELECT 10-50V	S309	87-A91-024-080		SW,TACT KSH0611BT
C559	87-010-196-080		CHIP CAPACITOR,0.1-25	S310	87-A91-024-080		SW,TACT KSH0611BT
C560	87-010-196-080		CHIP CAPACITOR,0.1-25	S311	87-A91-024-080		SW,TACT KSH0611BT
				S312	87-A91-024-080		SW,TACT KSH0611BT
C561	87-010-263-080		CAP, ELECT 100-10V	S313	87-A91-024-080		SW,TACT KSH0611BT
C562	87-010-314-080		C-CAP,S 22P-50V				
C563	87-010-314-080		C-CAP,S 22P-50V	S314	87-A91-024-080		SW,TACT KSH0611BT
C564	87-010-404-080		CAP, ELECT 4.7-50V	S315	87-A91-024-080		SW,TACT KSH0611BT
C565	87-010-196-080		CHIP CAPACITOR,0.1-25	S316	87-A91-024-080		SW,TACT KSH0611BT
				S317	87-A91-024-080		SW,TACT KSH0611BT
C566	87-010-315-080		C-CAP,S 27P-50 CH	S318	87-A91-024-080		SW,TACT KSH0611BT
C570	87-010-196-080		CHIP CAPACITOR,0.1-25				
C571	87-010-196-080		CHIP CAPACITOR,0.1-25	S319	87-A91-024-080		SW,TACT KSH0611BT
C572	87-010-196-080		CHIP CAPACITOR,0.1-25	S320	87-A91-024-080		SW,TACT KSH0611BT
C573	87-010-196-080		CHIP CAPACITOR,0.1-25	S321	87-A91-024-080		SW,TACT KSH0611BT
				S322	87-A91-024-080		SW,TACT KSH0611BT
C574	87-010-405-080		CAP, ELECT 10-50V	S323	87-A91-024-080		SW,TACT KSH0611BT
C575	87-010-405-080		CAP, ELECT 10-50V				
C576	87-010-196-080		CHIP CAPACITOR,0.1-25	SW301	87-A90-646-010		SW,RTRY 3-2-1 RE0131
C577	87-A10-096-080		CAP,E 1000-16				
C578	87-010-196-080		CHIP CAPACITOR,0.1-25	FL C.B			
C579	87-012-156-080		C-CAP,S 220P-50 CH				
C585	87-018-127-080		CAP, CER 470P-50V	C332	87-012-368-080		C-CAP,S 0.1-50 F
C588	87-010-196-080		CHIP CAPACITOR,0.1-25	C333	87-012-368-080		C-CAP,S 0.1-50 F
C589	87-010-196-080		CHIP CAPACITOR,0.1-25	C334	87-012-149-080		C-CAP,S 30P-50 CH
CN301	87-099-567-010		CONN,10P TUC-P10P-B1	C335	87-012-369-080		C-CAP,S 0.047-50F

REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
C339	87-012-156-080	C-CAP,S	220P-50 CH	C218	87-012-172-080		CAPACITOR CHIP U 10P CH
C340	87-012-156-080	C-CAP,S	220P-50 CH	C219	87-016-296-080		C-CAP, TN 22-4SV(A)
C341	87-012-156-080	C-CAP,S	220P-50 CH	C220	87-010-662-080		C-CAP, E 22-6.3
C342	87-012-156-080	C-CAP,S	220P-50 CH	C221	87-010-831-080		C-CAP,U,0.1-16F
C343	87-012-156-080	C-CAP,S	220P-50 CH	C222	87-016-444-080		C-CAP, TN 47-10 F95E
C344	87-012-156-080	C-CAP,S	220P-50 CH	C223	87-010-831-080		C-CAP,U,0.1-16F
C345	87-012-156-080	C-CAP,S	220P-50 CH	C224	87-A10-685-080		C-CAP,S 470P-100 J CH
C346	87-012-156-080	C-CAP,S	220P-50 CH	C225	87-010-831-080		C-CAP,U,0.1-16F
C347	87-012-156-080	C-CAP,S	220P-50 CH	C226	87-010-831-080		C-CAP,U,0.1-16F
C348	87-012-156-080	C-CAP,S	220P-50 CH	C227	87-012-274-080		CHIP CAP,U 1000P-50B
C349	87-012-156-080	C-CAP,S	220P-50 CH	C228	87-012-274-080		CHIP CAP,U 1000P-50B
C350	87-012-156-080	C-CAP,S	220P-50 CH	C229	87-012-274-080		CHIP CAP,U 1000P-50B
C351	87-012-156-080	C-CAP,S	220P-50 CH	C232	87-012-274-080		CHIP CAP,U 1000P-50B
C352	87-012-156-080	C-CAP,S	220P-50 CH	C233	87-012-274-080		CHIP CAP,U 1000P-50B
C353	87-012-156-080	C-CAP,S	220P-50 CH	C236	87-010-831-080		C-CAP,U,0.1-16F
C354	87-012-156-080	C-CAP,S	220P-50 CH	C300	87-010-831-080		C-CAP,U,0.1-16F
CN307	87-A60-078-010	CONN,09P H 9604S-09F		C301	87-010-831-080		C-CAP,U,0.1-16F
FL301	8Z-CK3-622-010	FL,16-ST-32GNK		C302	87-010-831-080		C-CAP,U,0.1-16F
				C305	87-016-462-080		C-CAP,S 1-16 F
				C307	87-010-831-080		C-CAP,U,0.1-16F
POWER C.B				C308	87-010-831-080		C-CAP,U,0.1-16F
CNA100	8Z-CK3-617-010	CONN ASSY,8P V WHT POWER MAIN		C311	87-010-662-080		C-CAP, E 22-6.3
ICF100	87-A91-276-080	FUSE,125MA 125V F 251		C312	87-012-195-080		C-CAP,U 100P-50CH
J101	87-049-784-010	AC JACK E		C321	87-012-274-080		CHIP CAP,U 1000P-50B
PT101	8Z-CK3-626-010	PT,ZCK-3 E		C322	87-012-274-080		CHIP CAP,U 1000P-50B
PT102	8Z-NF8-662-010	PT,SUB ZNF-8(E)		C323	87-012-274-080		CHIP CAP,U 1000P-50B
				C324	87-012-274-080		CHIP CAP,U 1000P-50B
				C325	87-012-274-080		CHIP CAP,U 1000P-50B
MD MAIN C.B				C400	87-010-831-080		C-CAP,U,0.1-16F
C100	87-016-296-080	C-CAP, TN 22-4SV(A)		C401	87-010-831-080		C-CAP,U,0.1-16F
C101	87-016-296-080	C-CAP, TN 22-4SV(A)		C402	87-010-831-080		C-CAP,U,0.1-16F
C102	87-012-286-080	CAP, U 0.01-25		C403	87-010-831-080		C-CAP,U,0.1-16F
C103	87-010-787-080	CAP, U 0.022-25		C404	87-010-831-080		C-CAP,U,0.1-16F
C104	87-010-662-080	C-CAP,E 22-6.3		C405	87-010-661-080		C-CAP, E 10-16
C105	87-010-831-080	C-CAP,U,0.1-16F		C406	87-010-779-080		C-CAP,E 100-6.3
C106	87-016-462-080	C-CAP,S 1-16 F		C407	87-012-197-080		C-CAP,U 150P-50 CH
C107	87-012-195-080	C-CAP,U 100P-50CH		C408	87-012-197-080		C-CAP,U 150P-50 CH
C108	87-012-274-080	CHIP CAP,U 1000P-50B		C411	87-012-271-080		CAP, U 560P-50
C109	87-016-436-080	C-CAP, TN 47-4(B2)		C412	87-012-271-080		CAP, U 560P-50
C111	87-016-296-080	C-CAP, TN 22-4SV(A)		C413	87-012-197-080		C-CAP,U 150P-50 CH
C112	87-012-286-080	CAP, U 0.01-25		C414	87-012-197-080		C-CAP,U 150P-50 CH
C113	87-012-284-080	CAP, U 6800P-50		C417	87-012-268-080		C-CAP,U 330P-50 B
C114	87-010-828-080	CHIP CAPACITOR,U 0.033-25F		C418	87-012-268-080		C-CAP,U 330P-50 B
C115	87-A10-369-080	C-CAP,S 0.47-16 K B		C423	87-012-286-080		CAP, U 0.01-25
C116	87-012-282-080	CAP, U 4700P-50		C424	87-012-286-080		CAP, U 0.01-25
C117	87-016-462-080	C-CAP,S 1-16 F		C429	87-012-286-080		CAP, U 0.01-25
C118	87-012-282-080	CAP, U 4700P-50		C430	87-012-286-080		CAP, U 0.01-25
C119	87-016-491-080	C-CAP,S 0.22-16 FZ		C431	87-010-779-080		C-CAP,E 100-6.3
C120	87-010-787-080	CAP, U 0.022-25		C434	87-010-831-080		C-CAP,U,0.1-16F
C121	87-012-286-080	CAP, U 0.01-25		C501	87-010-831-080		C-CAP,U,0.1-16F
C122	87-010-829-080	CAP, U 0.047-16		C502	87-010-831-080		C-CAP,U,0.1-16F
C123	87-012-286-080	CAP, U 0.01-25		C503	87-010-662-080		C-CAP, E 22-6.3
C124	87-010-662-080	C-CAP,E 22-6.3		C504	87-010-831-080		C-CAP,U,0.1-16F
C125	87-010-662-080	C-CAP,E 22-6.3		C505	87-010-662-080		C-CAP,E 22-6.3
C126	87-010-831-080	C-CAP,U,0.1-16F		C506	87-010-831-080		C-CAP,U,0.1-16F
C201	87-010-831-080	C-CAP,U,0.1-16F		C507	87-010-661-080		C-CAP,E 10-16
C202	87-010-831-080	C-CAP,U,0.1-16F		C508	87-010-831-080		C-CAP,U,0.1-16F
C203	87-010-785-080	C-CAP,U0.015-25BK		C509	87-010-662-080		C-CAP,E 22-6.3
C204	87-016-461-080	C-CAP,S 0.47-16F		C510	87-010-831-080		C-CAP,U,0.1-16F
C205	87-010-831-080	C-CAP,U,0.1-16F		C511	87-010-661-080		C-CAP,E 10-16
C206	87-012-270-080	CAP, U 470P-50		C513	87-010-661-080		C-CAP,E 10-16
C207	87-016-461-080	C-CAP,S 0.47-16F		C514	87-010-661-080		C-CAP,E 10-16
C208	87-012-286-080	CAP, U 0.01-25		C515	87-012-337-080		C-CAP,U 56P-50 CH
C209	87-010-831-080	C-CAP,U,0.1-16F		C516	87-012-337-080		C-CAP,U 56P-50 CH
C210	87-012-172-080	CAPACITOR CHIP U 10P CH		C517	87-012-278-080		C-CAP,U 2200P-50 B
C211	87-012-172-080	CAPACITOR CHIP U 10P CH		C518	87-012-278-080		C-CAP,U 2200P-50 B
C212	87-012-195-080	C-CAP,U 100P-50CH		C519	87-010-831-080		C-CAP,U,0.1-16F
C213	87-010-662-080	C-CAP,E 22-6.3		C520	87-010-661-080		C-CAP,E 10-16
C214	87-012-274-080	CHIP CAP,U 1000P-50B		C521	87-010-831-080		C-CAP,U,0.1-16F
C217	87-012-188-080	C-CAP,U 47P-50 CH		C522	87-010-661-080		C-CAP,E 10-16

TRANSISTOR ILLUSTRATION

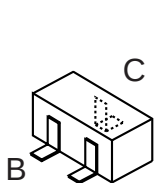
REF. NO	PART NO.	KANRI NO.	DESCRIPTION
C523	87-010-662-080		C-CAP, E 22-6.3
C524	87-010-662-080		C-CAP, E 22-6.3
C525	87-012-274-080		CHIP CAP, U 1000P-50B
C526	87-012-274-080		CHIP CAP, U 1000P-50B
C527	87-010-661-080		C-CAP, E 10-16
C528	87-010-661-080		C-CAP, E 10-16
C530	87-010-831-080		C-CAP, U, 0.1-16F
C531	87-010-831-080		C-CAP, U, 0.1-16F
C600	87-010-662-080		C-CAP, E 22-6.3
C601	87-010-779-080		C-CAP, E 100-6.3
C602	87-010-779-080		C-CAP, E 100-6.3
C603	87-010-662-080		C-CAP, E 22-6.3
C604	87-010-779-080		C-CAP, E 100-6.3
C605	87-012-286-080		CAP, U 0.01-25
C607	87-010-831-080		C-CAP, U, 0.1-16F
C608	87-010-831-080		C-CAP, U, 0.1-16F
CN400	87-A60-027-080		C-CONN, 8P H WHT
CN401	87-A60-062-010		CONN, 05P V 9604S-05C
FB501	87-A90-828-080		C-F-BEAD, BK1608LM182
L100	87-A50-117-080		C-COIL, 10UHLQH3C
L101	87-A50-012-080		C-COIL, 100UH LQH3C
L102	87-A50-117-080		C-COIL, 10UHLQH3C
L103	87-A50-117-080		C-COIL, 10UHLQH3C
L201	87-A50-117-080		C-COIL, 10UHLQH3C
L202	87-A50-117-080		C-COIL, 10UHLQH3C
L203	87-A50-116-080		C-COIL, 4.7UHLQH3C
L301	87-A50-117-080		C-COIL, 10UHLQH3C
L501	87-A50-116-080		C-COIL, 4.7UHLQH3C
L502	87-A50-116-080		C-COIL, 4.7UHLQH3C
L503	87-A50-116-080		C-COIL, 4.7UHLQH3C
L504	87-005-774-080		C-COIL, 4BLH
L505	87-005-774-080		C-COIL, 4BLH
L611	87-A50-163-080		C-COIL, ZBFS5101-PT
L612	87-005-512-080		C-COIL, BLM21A05
L613	87-005-512-080		C-COIL, BLM21A05
L614	87-A50-163-080		C-COIL, ZBFS5101-PT
L615	87-A90-034-080		C-FLTR, EMI BLM41P750
L616	87-A50-163-080		C-COIL, ZBFS5101-PT
R423	87-025-564-080		C-RES, U M/F 47K D
R424	87-025-564-080		C-RES, U M/F 47K D
R425	87-022-583-080		C-RES, U M/F 12K D
R426	87-022-583-080		C-RES, U M/F 12K D
X200	87-A70-105-080		C-VIB, XTAL 22.5792MHZ SMD-49
X301	87-A70-100-080		C-VIB, CER 12.0MHZ PBRC-BR-A

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
LOAD C.B			
FC451	87-ZG9-604-010		FF-CABLE, 5P 1.25 100MM
M450	87-A90-672-010		MOT, M25E-4
SW451	87-A90-673-010		SW, MICRO ESE11SH1C
SW452	87-A90-117-010		SW, PUSH 1-1-1 MPU1037MLB0
MECHA C.B			
FC400	87-ZG9-603-010		FF-CABLE, 8P 1.0 120MM
M400	87-A90-413-010		MOT, FF-110PH 9
M401	87-A90-616-010		MOT, FF-N30VA
SW400	87-A90-611-010		SW, PUSH 3-2-2 MPU20300MLB0
SW401	87-A90-612-010		SW, PUSH 2-1-1 MPU10371MLB1
CD MOTOR C.B			
CON1	87-099-210-010		CONN, 5P 6216 H
M1	87-045-305-010		MOTOR, RF-500TB DC-5V (2MA)
SW1	87-036-110-010		PUSH SWITCH
SW2	87-036-110-010		PUSH SWITCH
DRIVE C.B			
M20	87-045-358-019		MOT, RF-310TA 43
M21	87-045-356-019		MOT, RF-310TA 30
SW1	87-A90-042-019		SW, LEAF MSW 17310 MVP0
DECK C.B			
SFR1	87-024-581-010		SFR, 3.3K DIA 6H KOA
SOL1	82-ZM1-618-310		SOL ASSY, 27
SW2	87-A90-248-019		SW, MICRO ESE11SH2CXQ
SW3	87-A90-248-019		SW, MICRO ESE11SH2CXQ
SW5	87-A90-248-019		SW, MICRO ESE11SH2CXQ
SW6	87-A90-248-019		SW, MICRO ESE11SH2CXQ
RELAY-1 C.B			
CNA400	8Z-CK3-615-010		CONN ASSY, 8P V WHT DECK



E C B

2SA933S
2SC1740S
DTC114ES
DTC114TS



E

2SA1588
2SC2714
2SC4116
DTC143TK

RN1210
RN1305
RN2305
RT1P144C



E C B

2SA952
2SA1318
2SC1815
2SD655
KTA1266
KTC3198

- Regarding connectors, they are not stocked as they are not the initial order items.
The connectors are available after they are supplied from connector manufacturers upon the order is received.

○チップ抵抗部品コード／CHIP RESISTOR PART CODE

チップ抵抗部品コードの成り立ち

Chip Resistor Part Coding

8 8 - □ □ □ □ □ □

A
抵抗部品コード
Resistor Code

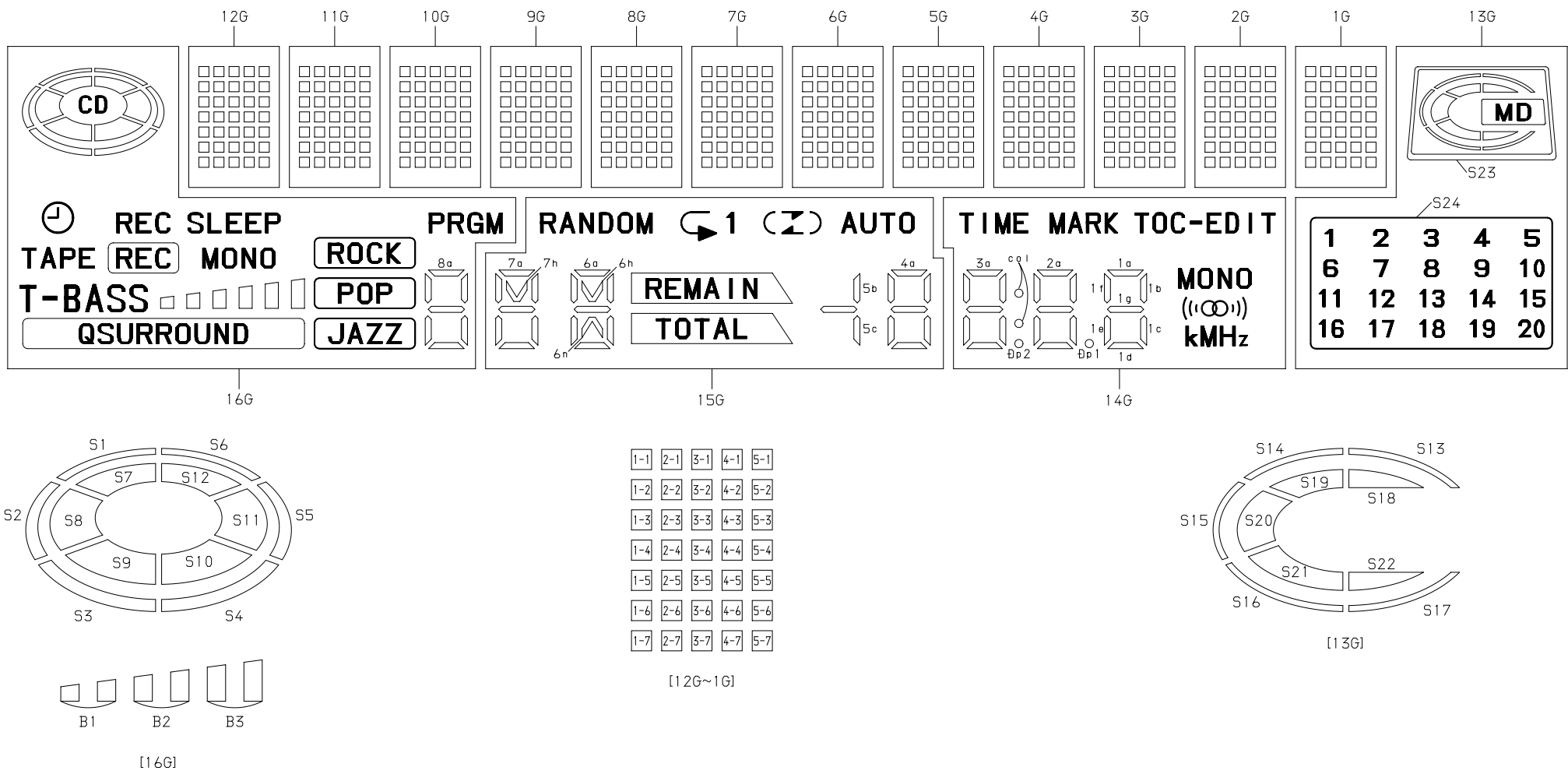
桁表示
Figure

抵抗値
Value of resistor

チップ抵抗
Chip resistor

容量 Wattage	種類 Type	許容誤差 Tolerance	記号 Symbol	寸法／Dimensions (mm)				抵抗コード : A Resistor Code : A
				外形／Form	L	W	t	
1/16W	1005	± 5%	CJ		1.0	0.5	0.35	104
1/16W	1608	± 5%	CJ		1.6	0.8	0.45	108
1/10W	2125	± 5%	CJ		2	1.25	0.45	118
1/8W	3216	± 5%	CJ		3.2	1.6	0.55	128

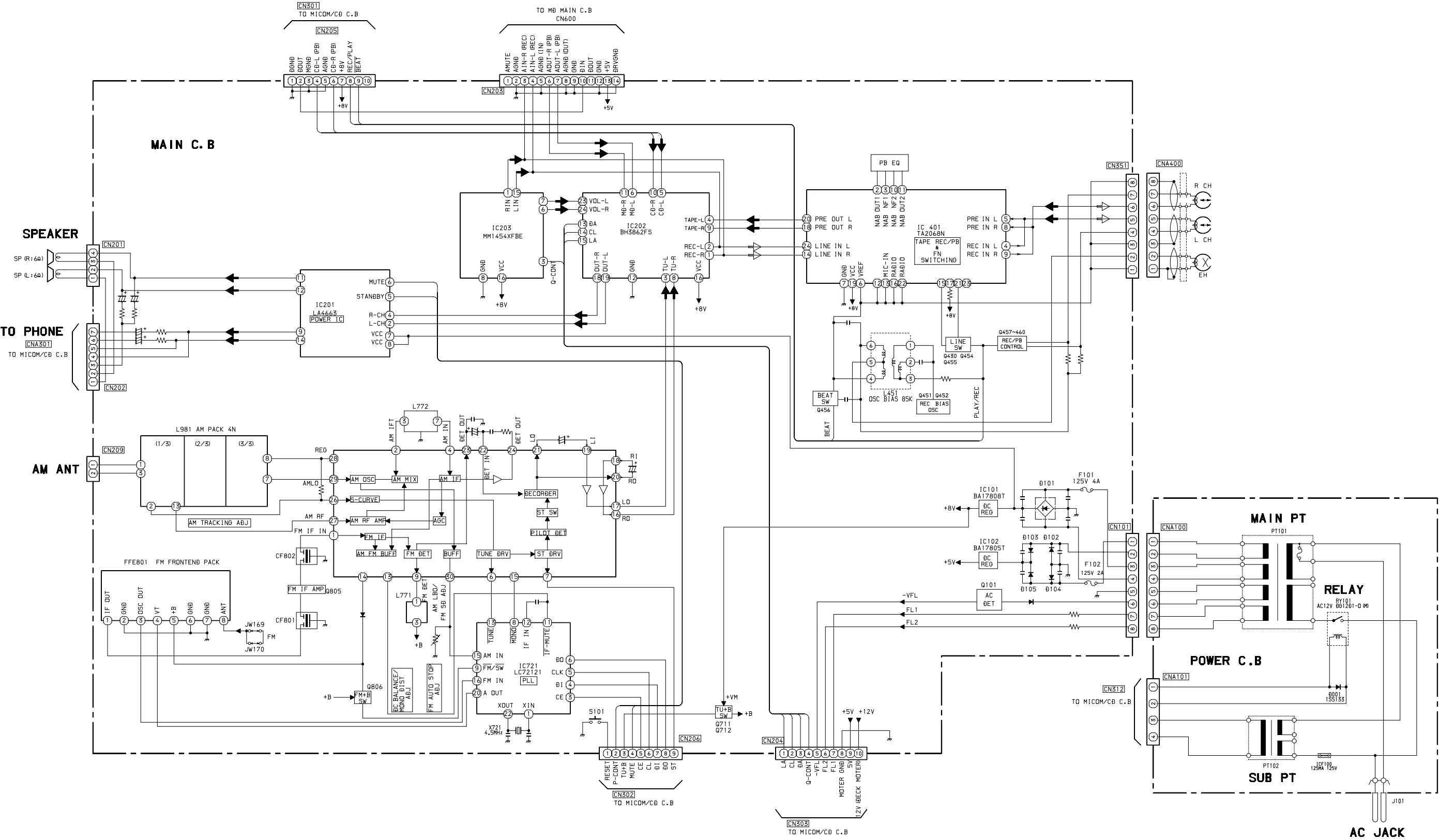
FL (16-ST-32GNK) GRID ASSIGNMENT/ANODE CONNECTION



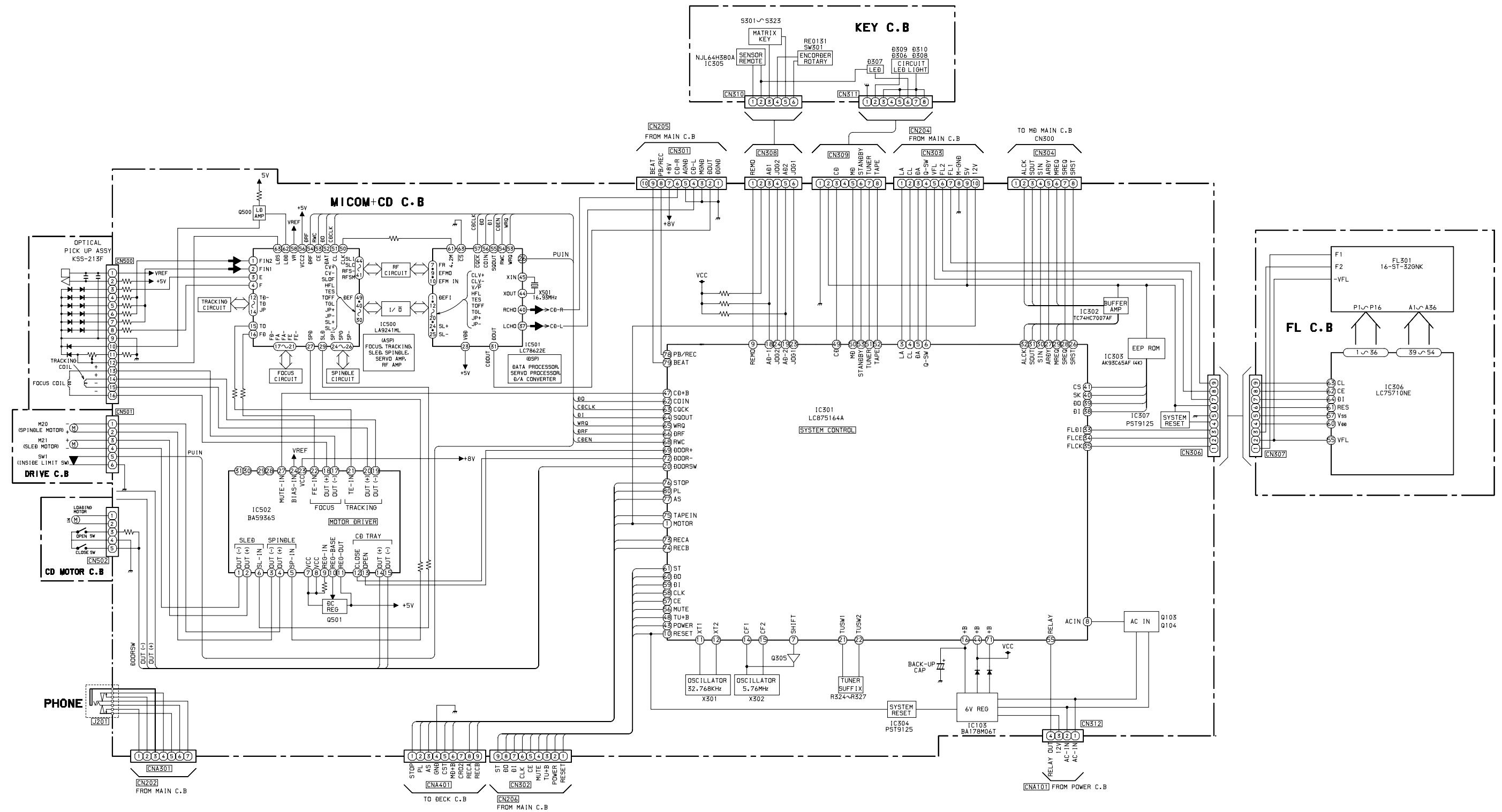
ANODE CONNECTION

	1G~12G	13G	14G	15G	16G
P1	1-1	S24	3d	4d	CD
P2	2-1	20	3c	4c	S3
P3	3-1	19	3e	4e	S9
P4	4-1	18	3g	4g	S2
P5	5-1	17	3b	4b	S8
P6	1-2	16	3f	4f	S1
P7	2-2	15	3a	4a	S7
P8	3-2	14	3p2	5c	S6
P9	4-2	13	col	5b	S12
P10	5-2	12	2e	5b	S5
P11	1-3	11	2f	5c	S11
P12	2-3	10	2d	5c	S4
P13	3-3	9	2g	5c	S10
P14	4-3	8	2a	7d	8d
P15	5-3	7	2c	7c	8c
P16	1-4	6	2b	7e	8e
P17	2-4	5	3p1	7g	8g
P18	3-4	4	1e	7b	8b
P19	4-4	3	1f	7f	8f
P20	5-4	2	1d	7h	8a
P21	1-5	1	1g	7a	QSURROUND
P22	2-5	-	1a	6e	TAPE
P23	3-5	-	1c	6f	T-BASS
P24	4-5	S20	1b	6d	JAZZ
P25	5-5	S15	k	6n	POP
P26	1-6	S21	M	6g	ROCK
P27	2-6	S16	Hz	6h	REC
P28	3-6	S22	((∞))	6a	MONO
P29	4-6	S17	MONO	6c	TOC-EDIT
P30	5-6	S18	TOC-EDIT	6b	AUTO
P31	1-7	S13	MARK	1	REMAIN
P32	2-7	S19	TIME	1	MONO
P33	3-7	S14	-	1	SLEEP
P34	4-7	MD	-	1	PRGM
P35	5-7	S23	-	1	-
P36	-	-	-	1	-

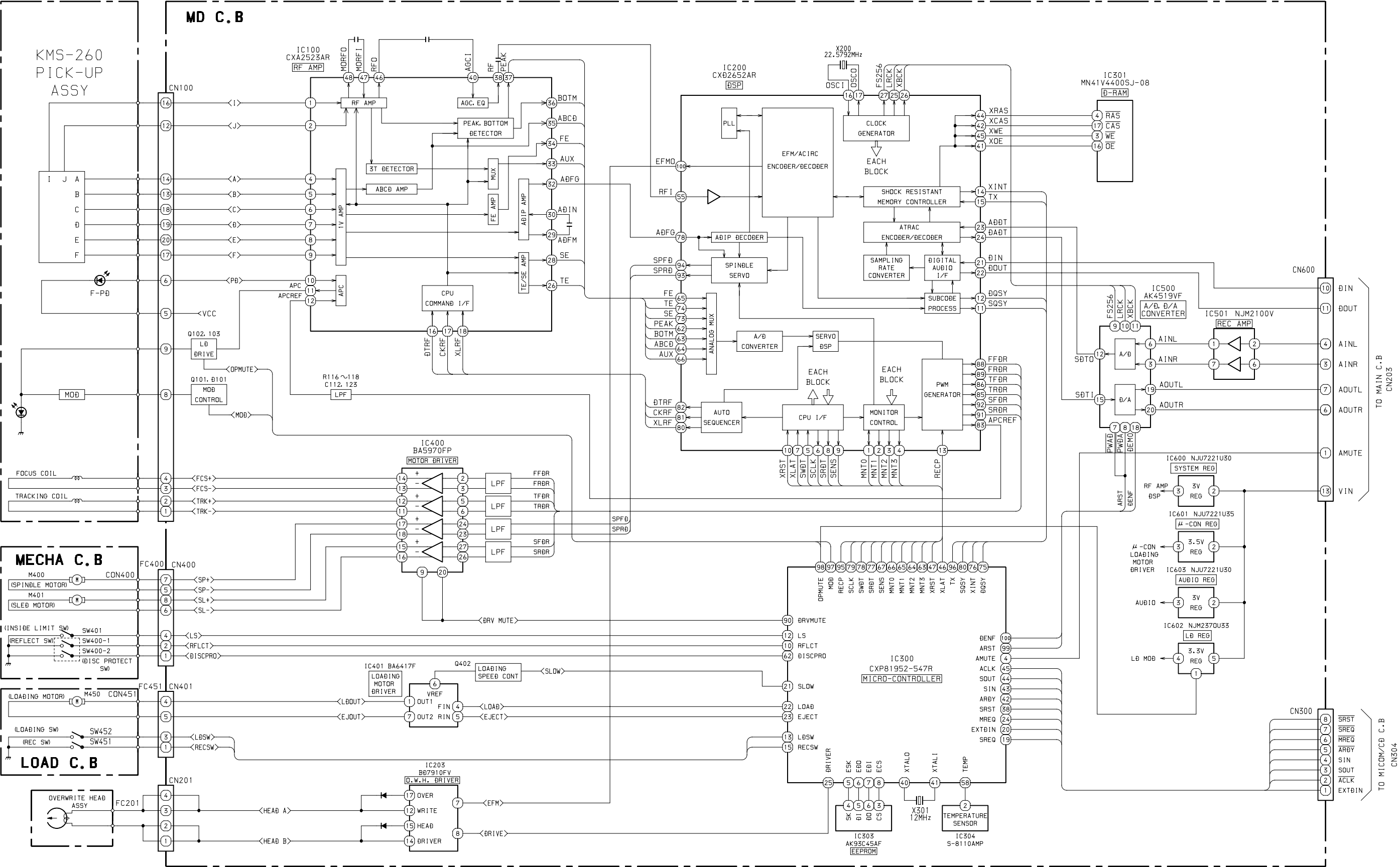
BLOCK DIAGRAM-1 (MAIN)



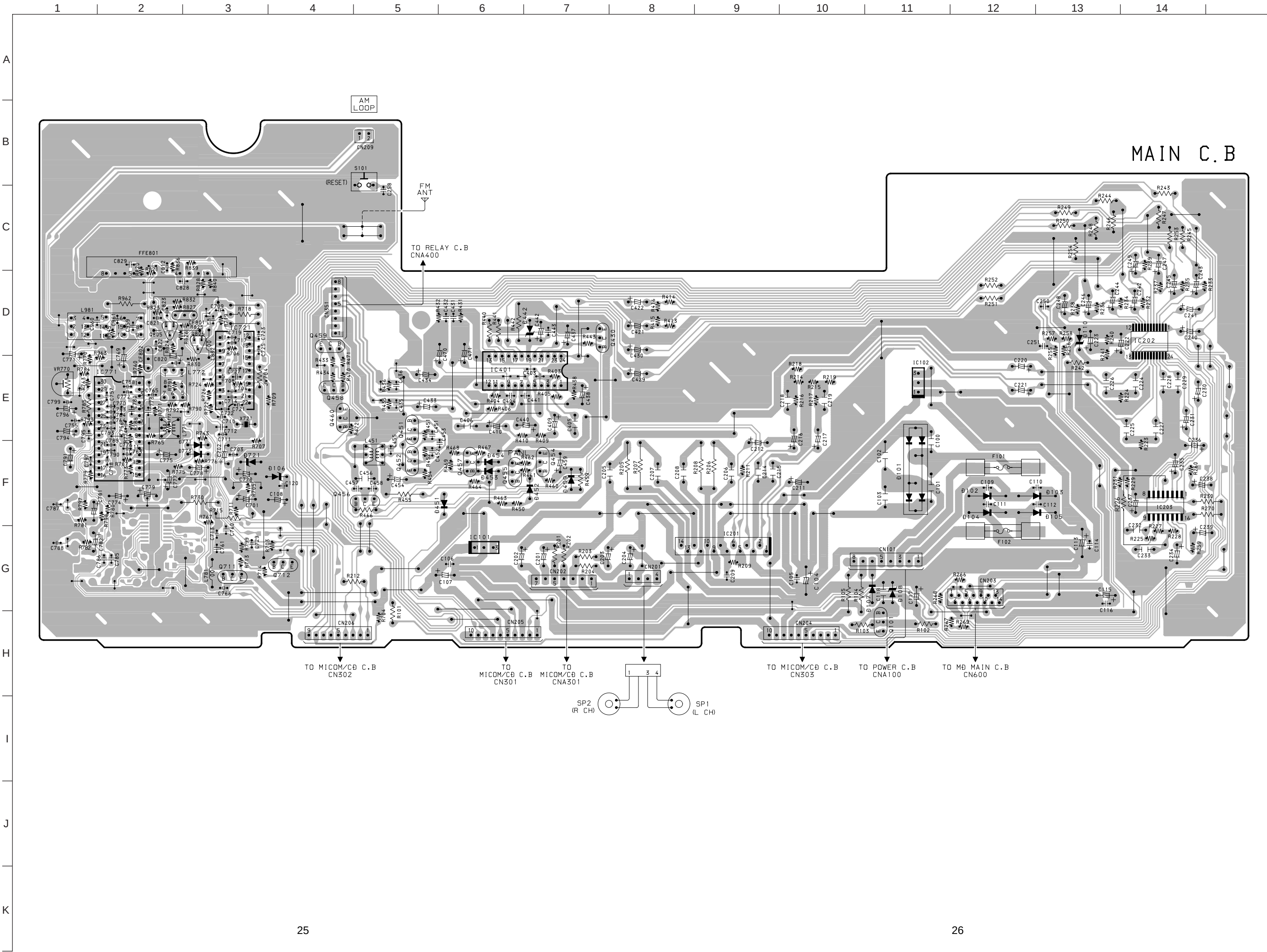
BLOCK DIAGRAM-2 (SYSTEM CONTROL)



BLOCK DIAGRAM-3 (MD)

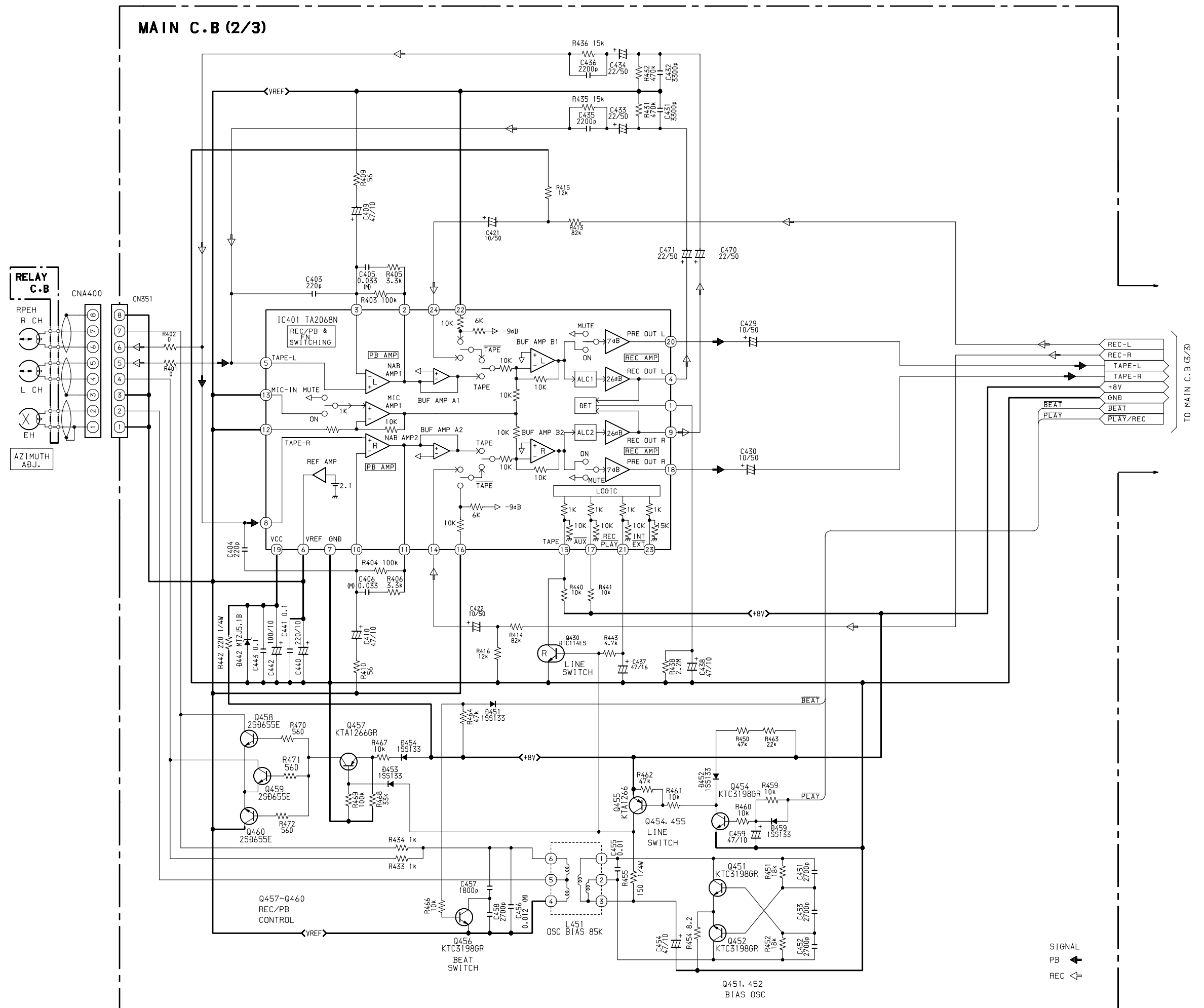


WIRING-1 (MAIN)

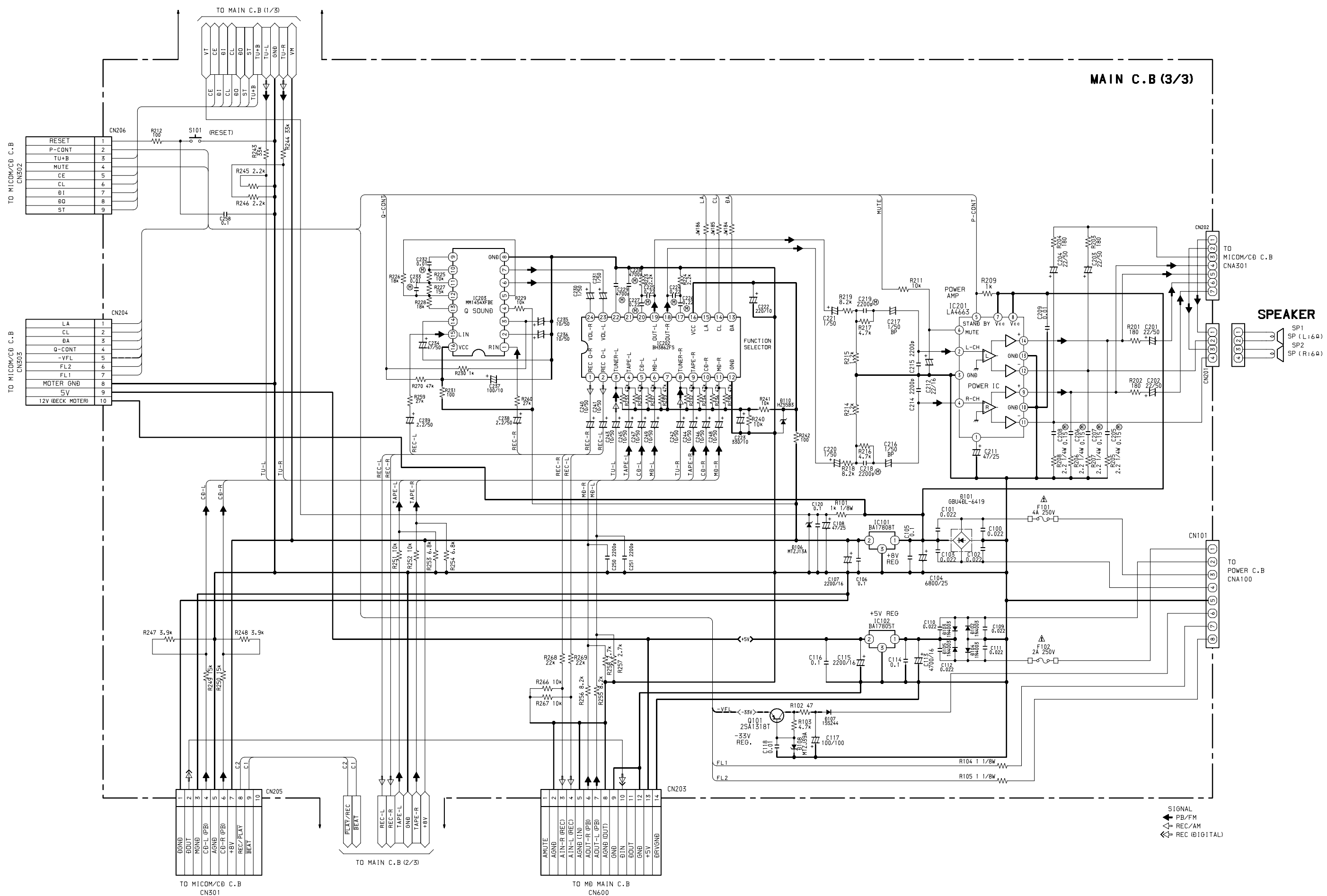


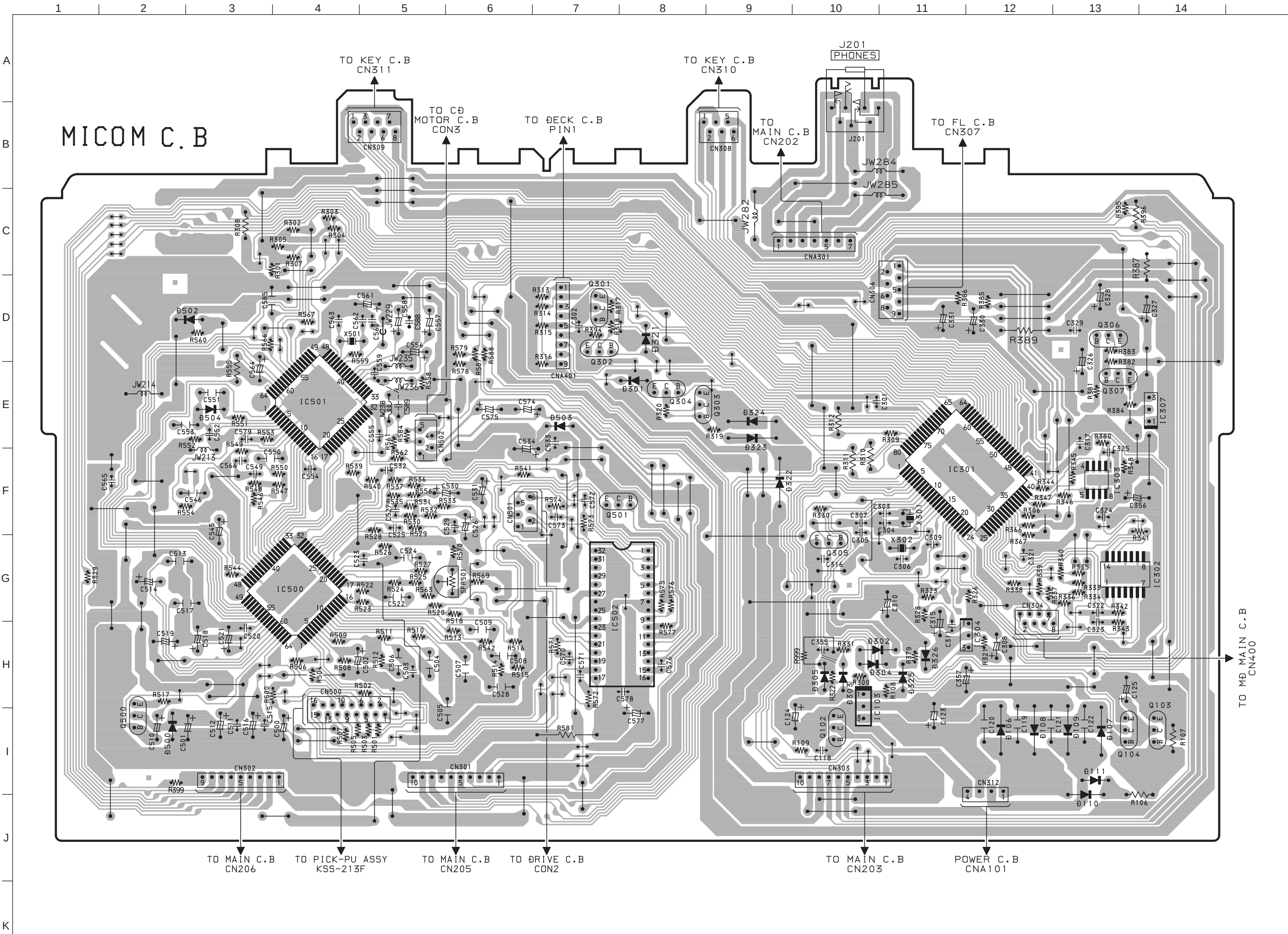
TO MAIN C.B (3/3)



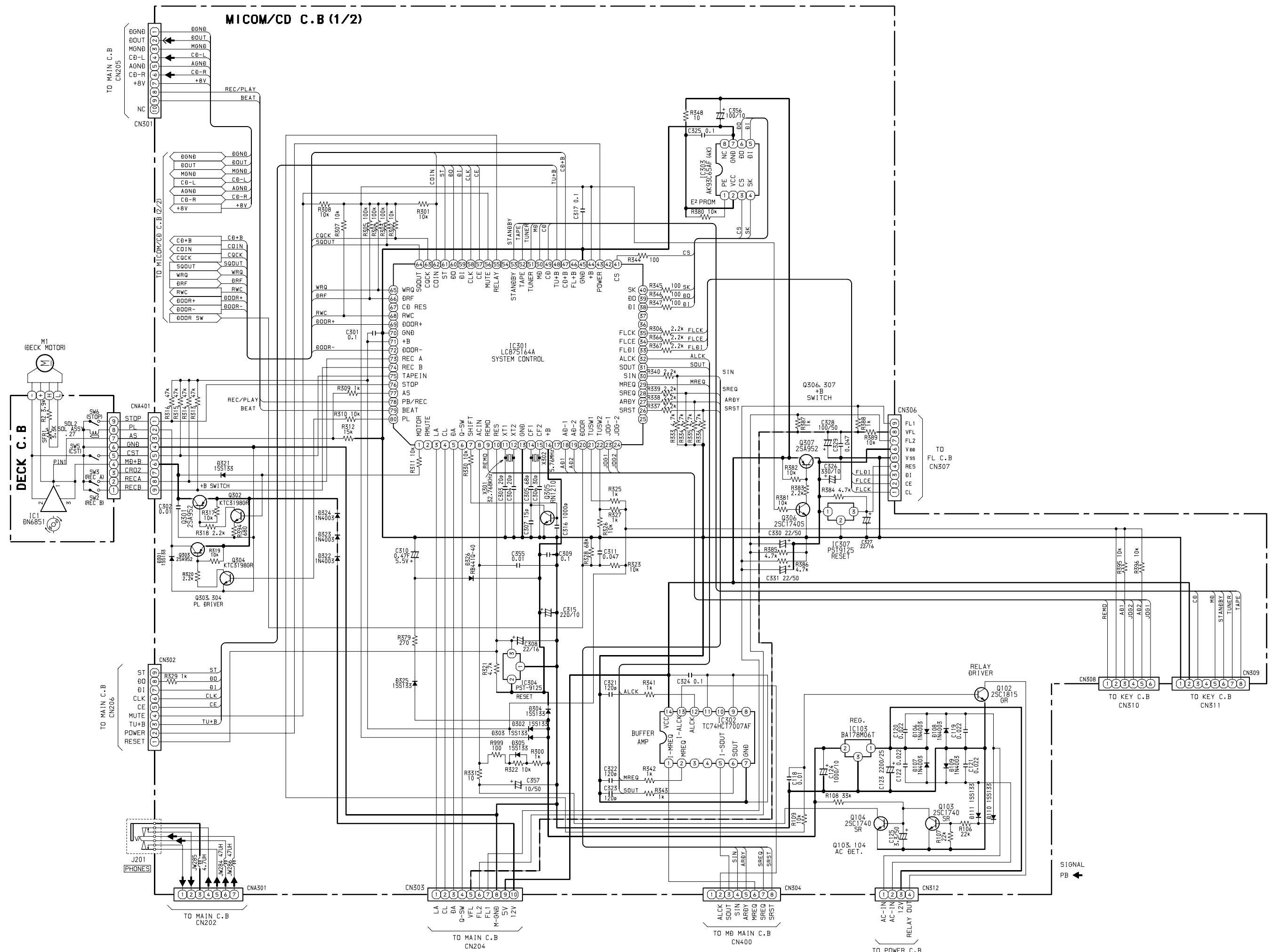


SCHEMATIC DIAGRAM-3 (MAIN)

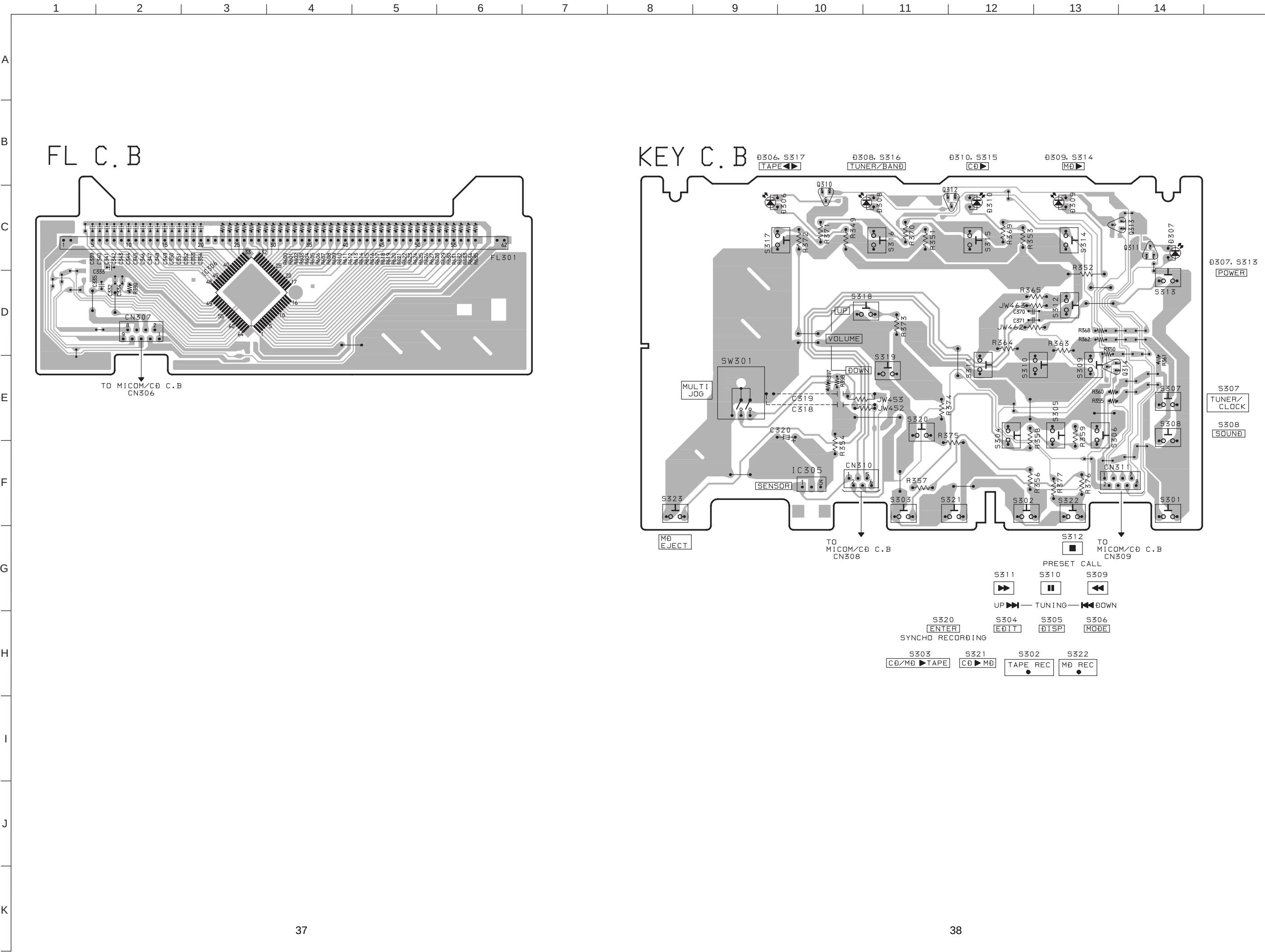




SCHEMATIC DIAGRAM-4 (SYSTEM CONTROL)



WIRING-3 (FL/KEY)



CD MECHANISM
(1/2)
3ZG-2 E2

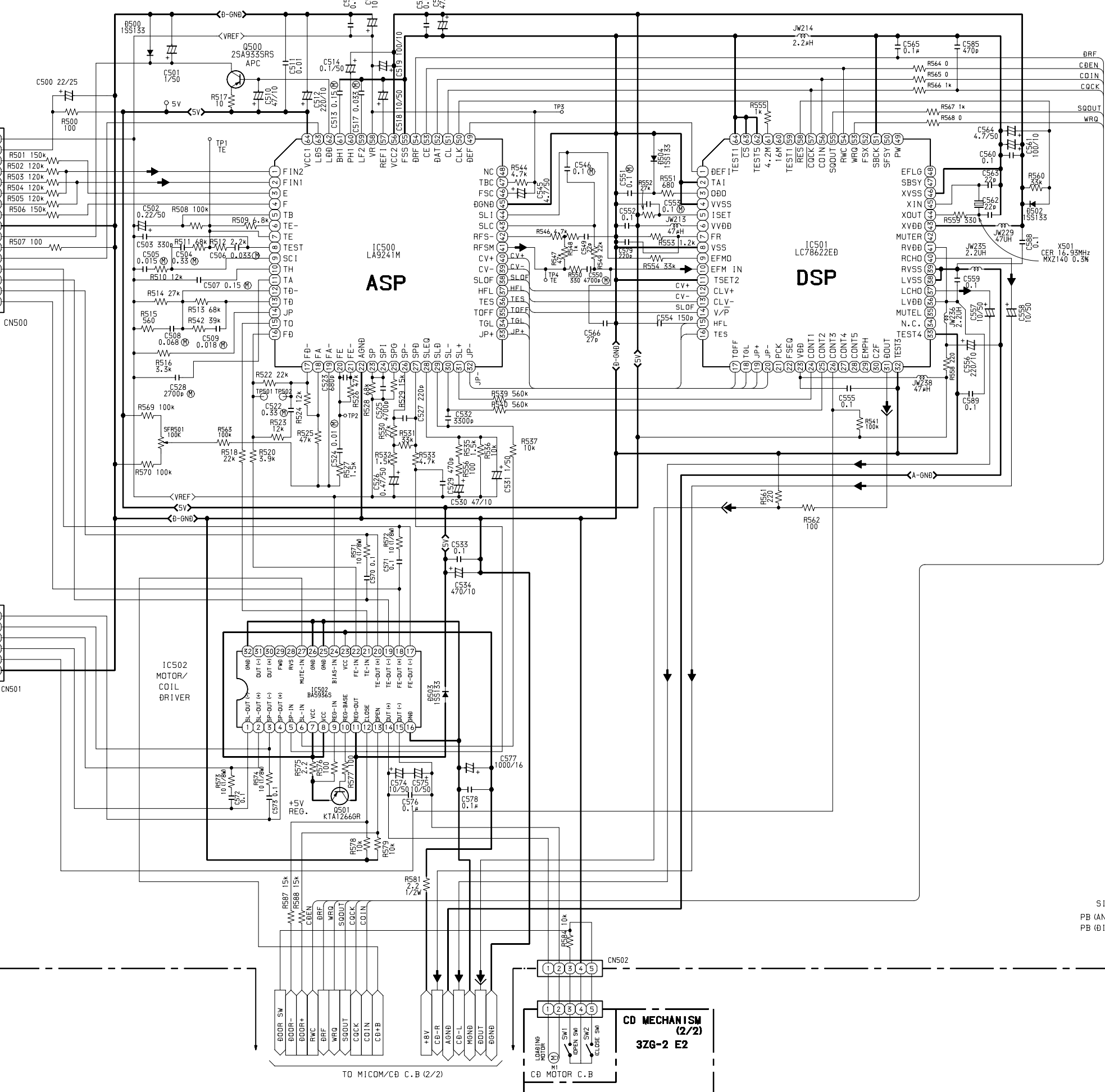
PICK UP ASSY
K55-213F

FOCUS
COIL
TRACKING
COIL

DRIVE C.B

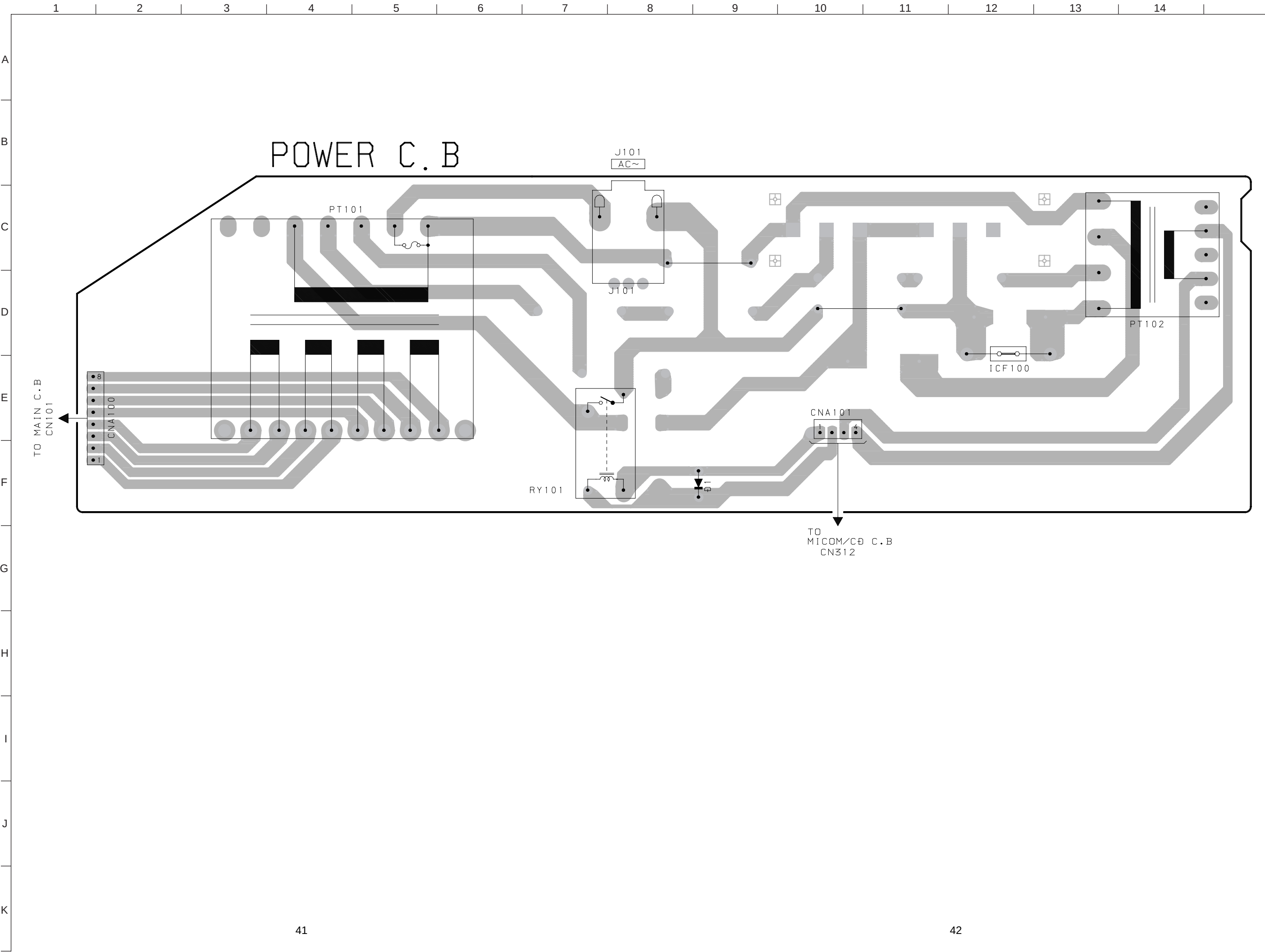
M20
(SPINDLE
MOTOR) + SPINBL
M21
(SLED
MOTOR) + SLED
SW1
(INSIDE
LIMIT
SWITCH) + PU-IN

MICOM/CD C.B (2/2)

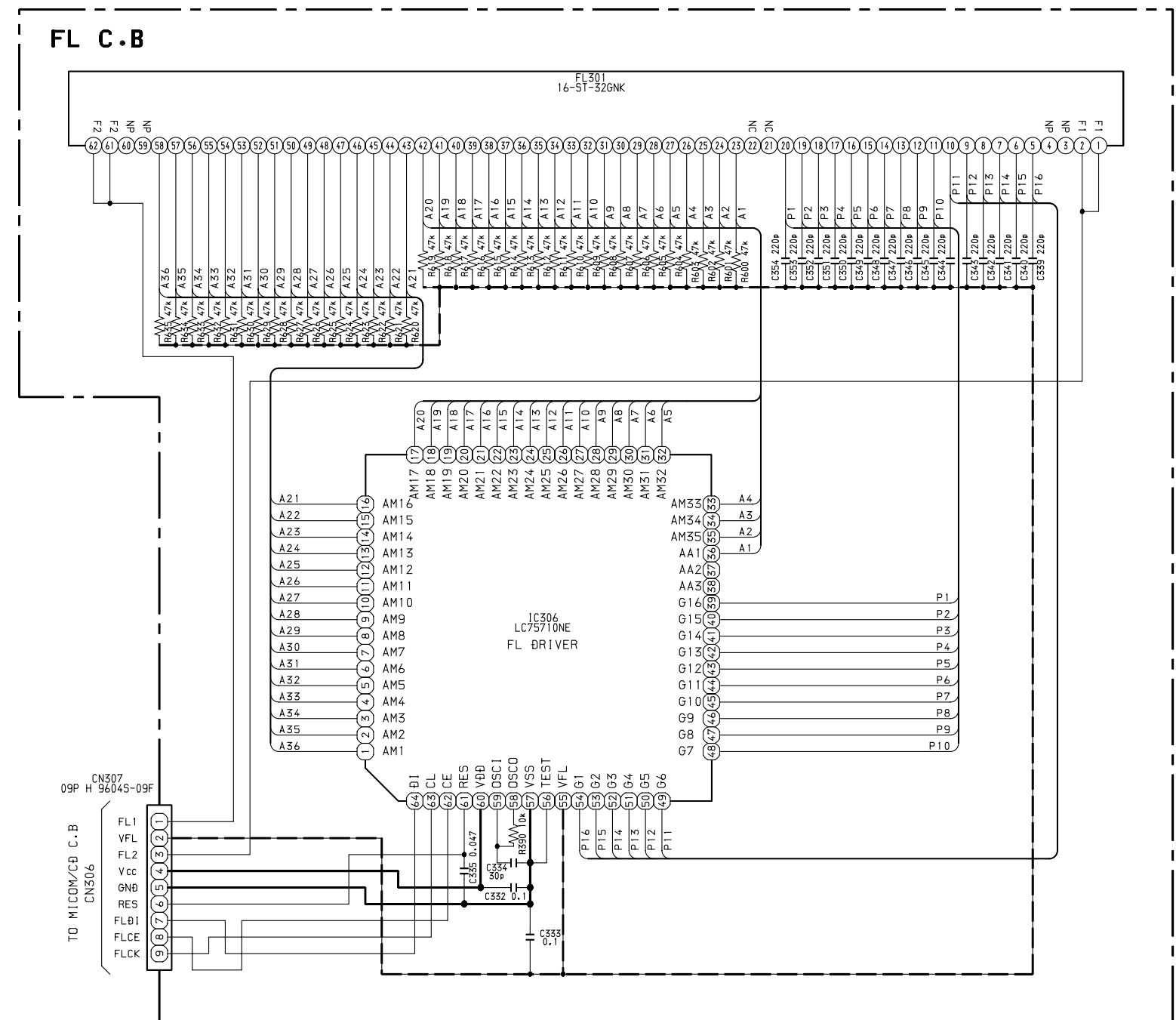
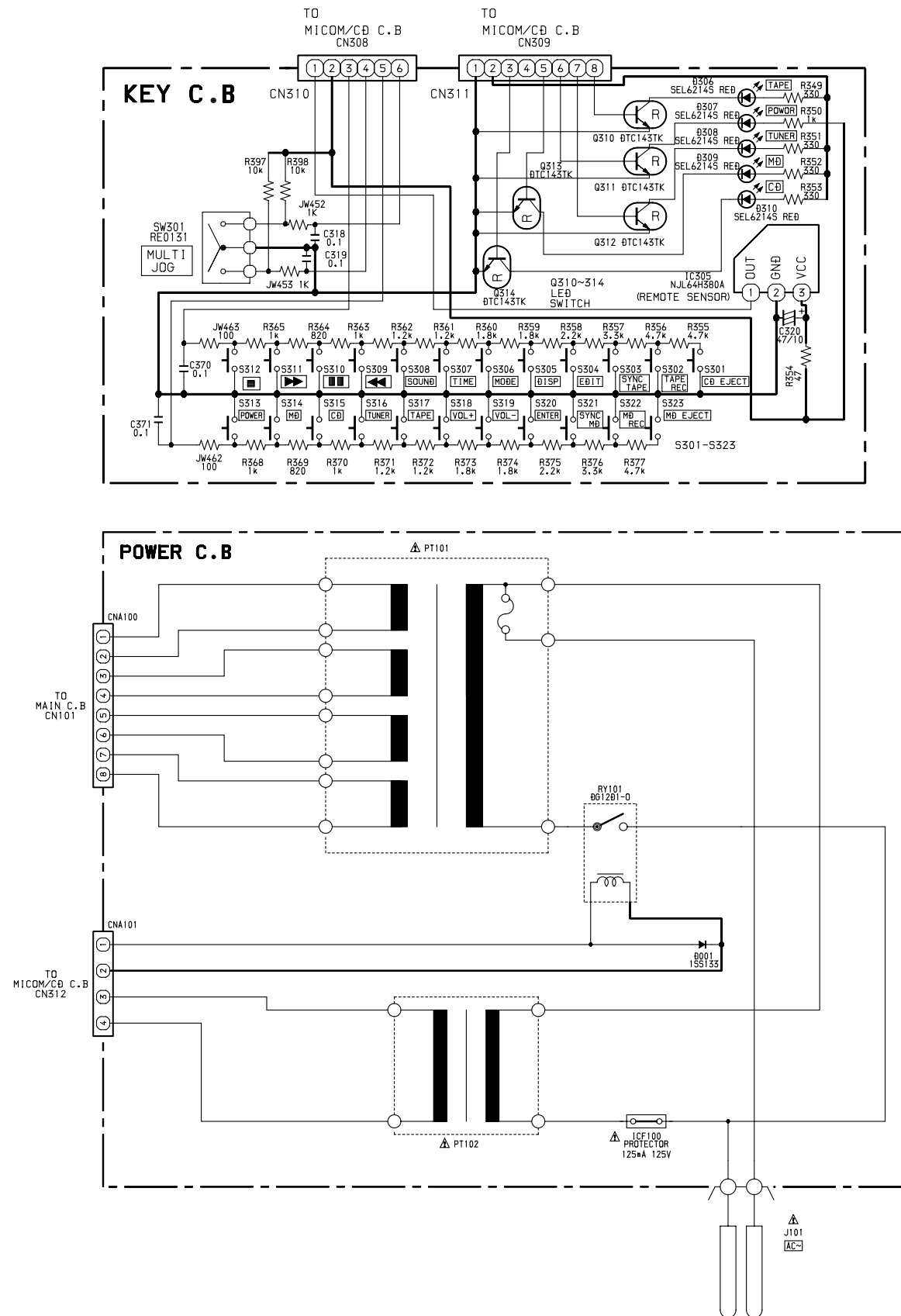


SIGNAL
PB (ANALOG)
PB (DIGITAL)

WIRING-4 (POWER)

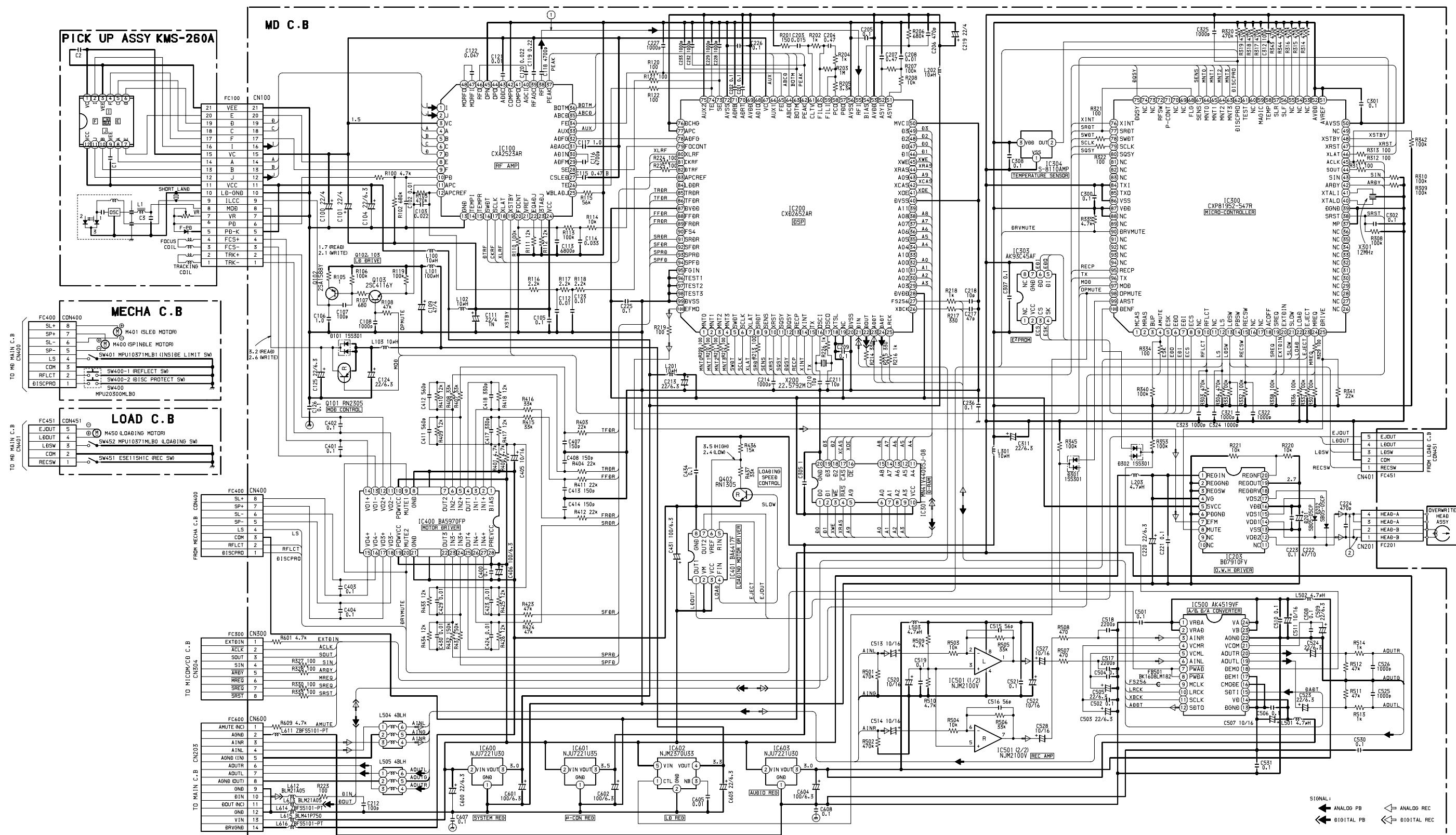


SCHEMATIC DIAGRAM-6 (FL/KEY/POWER)

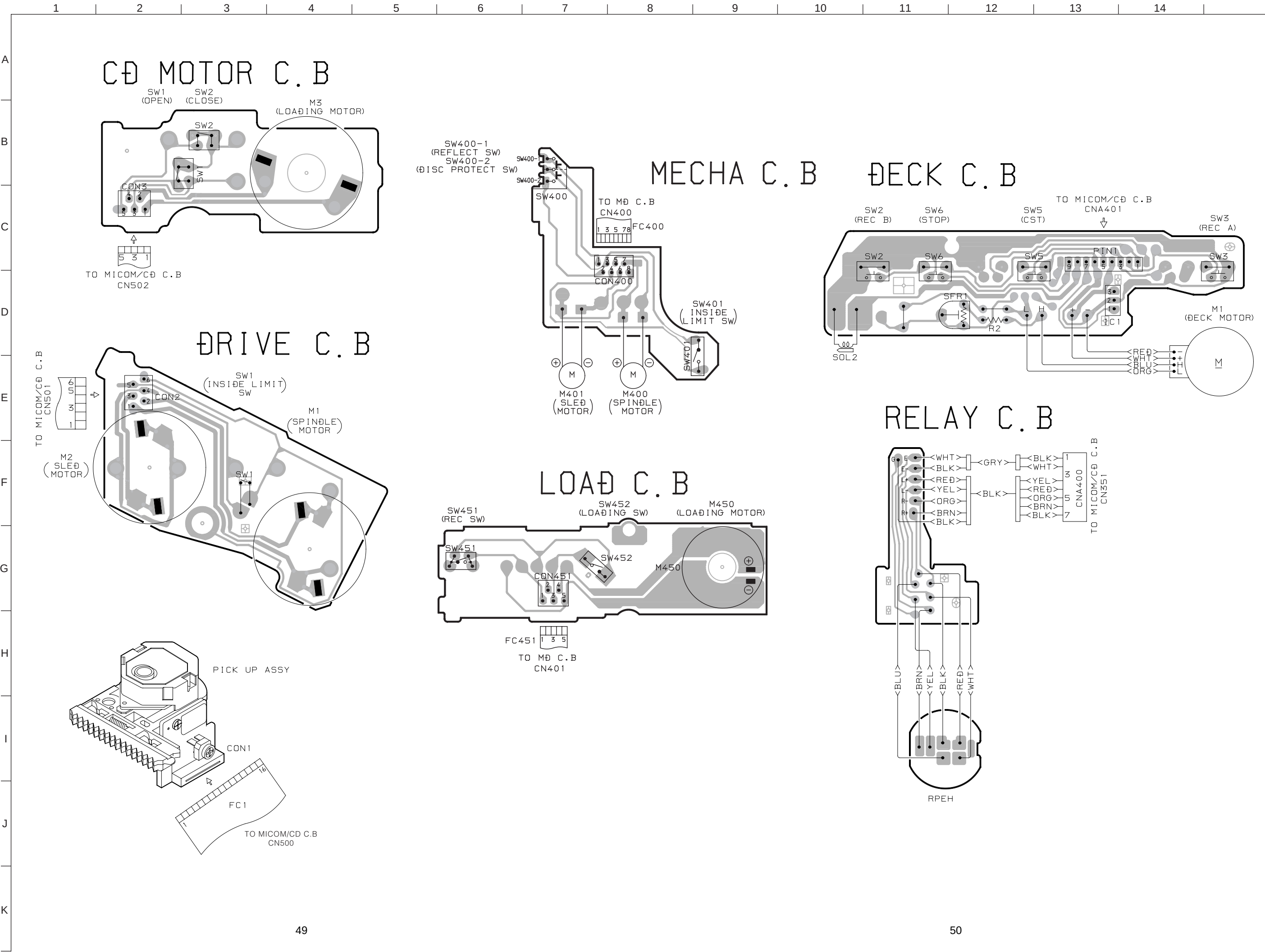




SCHEMATIC DIAGRAM-7 (MD)



WIRING-6 (MECHANISM)



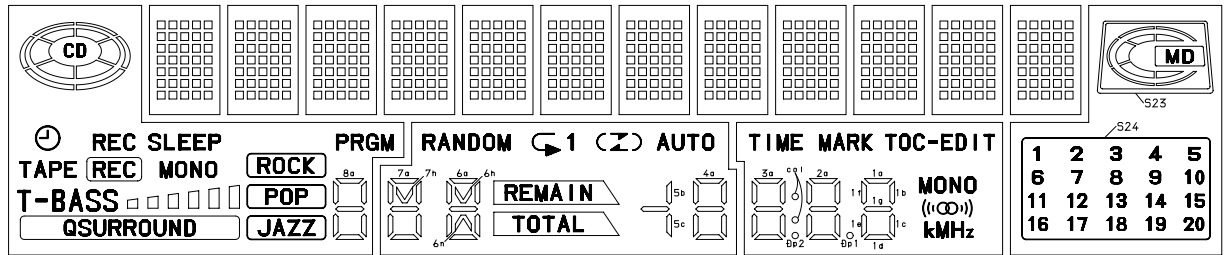
TEST MODE

1. CD TEST Mode

1-1. How to Active the CD TEST Mode

While pressing the CD ► button, connect the AC power plug to the power outlet.

After the TEST mode is activated, the message “CD TEST” appears on the display and all displays on the FL tubes are turned on.



1-2. Description of the TEST Mode Functions

Mode	Operating Control	FL Display	Operation	Function
Start mode	Activating the test mode	All displays are ON		
Search mode	■	TOC READING	Continuous focus search PU lens repeats full swing Repeats * Note	APC circuit check Laser current measurement Focus error waveform check
Play mode	CD ►	Track No. and playing time are displayed Eye catch rotates	Normal playback When the TOC READING cannot be performed, the same movement as the search mode is performed	Focus servo Tracking servo CLV servo Sled servo
Traverse mode		Track No. and playing time are displayed Eye catch flashes	Playback pause state	Tracking servo OFF
Sled mode	►► ◄◄	All displays are ON	Pick up moves inner circumference Pick up moves outer circumference	Sled servo Mechanism operation check

Note: If the focus search is continued for ten minutes or longer, CD stops working because driver IC is heated and protection circuit works. Restart the TEST mode after turning off the power supply to cool down the heat for about ten minutes.

1-3. How to Exit the CD TEST Mode

Exit the CD TEST mode by disconnecting the AC power plug from the power outlet, or by pressing the POWER button, or by pressing any key other than the CD function button.

2. MD TEST Mode

2-1. How to Active the MD TEST Mode

While pressing the MD ► button, connect the AC power plug to the power outlet.

After the TEST mode is activated, waits about one second, then the message “MD TEST” appears on the display.

The MD TEST mode can be used.

Note: 1. If a machine shows any abnormal operations during the TEST mode, unplug the main AC power immediately.
2. Recording and played back are not possible during the TEST mode.

2-2. How to Exit the MD TEST Mode

- 1) Eject the disc by pressing the “MD EJECT” button or the “VOLUME UP” button.
- 2) Disconnect the AC power plug from the power outlet, or press the “POWER” button.

2-3. Operation Check Mode

- 1) Checking activation of the TEST mode

Playback system audio circuit can be checked as follows.

- Circuit that can be checked DAC, LINE AMP, HEADPHONE AMP
- Output level 1kHz, -12dB

- 2) Checking status of the switches

The ON/OFF status of the respective switches on the machine and mechanism can be checked on the LCD display.

Switch Name	Switch Status	Display	Disc in use
REC PROTECT	When the WRITE PROTECT tab of a disc is closed	ROCK frame is ON	Disc for record and playback
REFLECT	When high reflection disc (CD) is used	POP frame is ON	Disc for playback only
INNER	When pick up is in the inner most circumference (LIMIT SW ON)	JAZZ frame is ON	—

- 3) Detecting status of mechanism

Status of mechanism	FL Display
Unloading status	PRGM is turned on
Loading status	RANDOM is turned on
Status that the over-write-head has moved down	PRG and RANDOM are turned on

2-4. How to Switch the Mode to the Servo Standby Mode

After the MD TEST mode has started up, the mode is switched to the servo standby mode when the ■ button is pressed, and the message “ALL SV OFF” appears on the display. The machine can enter any other modes from the “ALL SV OFF” mode. The machine can return from any other modes to the “ALL SV OFF” mode by pressing the ■ button.

2-5. Checking the Sled Movement

- 1) The laser pickup moves to the outer circumference when the ►► button is pressed while the machine is in the “ALL SV OFF” status. Then, the message “T. SLED RVS” appears on the display.
- 2) The laser pickup moves to the inner circumference when the ◄◄ button is pressed while the machine is in the “ALL SV OFF” status. Then, the message “T. SLED RVS” appears on the display.

2-6. Checking Laser Output

- 1) Every passing of the “TIMER/CLOCK” button in the “ALL SV OFF” state changes output of laser power. Laser can be operated in the following order: OFF → LASER READ → LASER 1/2 → LASER WRITE → OFF. The FL displays are as shown.

Mode	FL Display
OFF	ALL SV OFF
LASER READ	LASER READ + T-BASS level 1
LASER 1/2 WRITE	LASER 1/2 + T-BASS level 2
LASER WRITE	LASER WRITE + T-BASS level 3

- 2) When all checks are completed, press the ■ button to show the message “ALL SV OFF” on the display.

2-7. Operation Check of OWH (Over-write-head)

The OWH can moves up or down when the “VOLUME UP” button or “VOLUME DOWN” button is pressed while the machine is in the loading status.

“VOLUME UP” button OWH moves up.

“VOLUME DOWN” button OWH moves down.

Note: Don't move down the OWH when the high reflection disc (CD) is used.

2-8. Checking Servo Operation

- Checking the focus search and spindle kick: 1
 - 1) When the MD ► button is pressed while the machine is in the “ALL SV OFF” status without inserting a disc, focus search and spindle kick are performed continuously.
The message “FOCUS SRCH” appears on the display.
 - 2) After the check is completed, press the ■ button to show the message “ALL SV OFF” on the display.
- Checking the focus search and spindle kick: 2
 - 1) When the “TUNER/BAND” button is pressed while the machine is in the “ALL SV OFF” status with a disk inserted or without inserted, focus search and spindle kick are performed continuously .
The message “FOCUS CHECK” appears on the display.
The S curve characteristics can be checked when a disc is inserted.
 - 2) After the check is completed, press the ■ button to show the message “ALL SV OFF” on the display.
- Checking the focus servo
 - 1) Insert a test disc.
 - 2) Move the laser pickup to the center of a disc using the ►► button and ◄◄ button.
 - 3) Press the TAPE ◄► button, and set the servo mode of the inserted disc as follows.
MO disk (MO) Select the “SELECT GRV” display.
PIT disk (CD) Select the “SELECT PIT” display.
 - 4) Press the MD ► button.
When the focus servo has no problem, the messages “FOCUS SRCH” appears then “FOCUS ON!” appears on the display.
 - 5) After the check is completed, press the ■ button to show the message “ALL SV OFF” on display.
- Checking that all servos are turned ON
 - 1) When the “ENTER” button is pressed while the machine is in the “FOCUS ON!” status, the tracking and sled servos are turned on and all servos start moving.
When the all servos have no problem, the message “ALL SV ON” appears on the display.
 - 2) After the check is completed, press the ■ button to show the message “ALL SV OFF” on display.

3. ADJUSTMENT (MD)

3-1. Temperature Compensation Adjustment

Test point: Adjustment result is shown on the display

Jig: Thermometer

Adjustment method:

- 1) After activating the MD TEST mode, press the ■ button to display the “ALL SV OFF” .
- 2) Press the “DISP” button to change the display to “TEMP=\$◇◇”.
- 3) Press the “EDIT” button to change the display into “TMP+**c:±##” .
- 4) Place a thermometer near MD mechanism to measure the room temperature.
- 5) Perform adjustment by pressing the ►► and ◄◄ buttons until the thermometer reading and the value ** that is shown on the display agree. Press the “ENTER” button.
- 6) After the adjustment is completed, press the ■ button to display “ALL SV OFF”.
- 7) When the setting is completed, display the “TMP+**c:±##” again and check the value that is calculated by adding or subtracting the ## value to and from ** must be the room temperature.

Note: Don't perform the above adjustment if the room temperature cannot be measured.

3-2. Laser Power Adjustment

Test point: Pick up laser output

Jig: Laser power meter

Adjustment method:

- 1) Press the “TIMER/CLOCK” button three times in the “ALL SV OFF” state to change the display to “LASER WRITE”.
- 2) Press the “EDIT” button once to display “LASER=\$**”.
- 3) Measure the pick up laser output using the laser power meter, and perform adjustment so that the measuring value is $6.8 \pm 0.03\text{mW}$ by pressing the ►► and ◄◄ buttons. After the adjustment is completed, press the “ENTER” button.
- 4) Press the ■ button to display “ALL SV OFF”.

Note: If laser output exceeds 7.0mW, the pick up may be damaged.

3-3. AUTO SEQUENCE Adjustment (EFB/IVR/FOCUS AGC/TRACKING AGC adjustment)

Test disc: MDW-60. TGYS-1

When adjusting MO disc

- 1) Insert the test disc MDW-60.
- 2) Press the ■ button to display "ALL SV OFF".
- 3) When the "EDIT" button is pressed, "AUTO ADJ" is displayed. When the adjustment is completed, "DONE" is displayed. (When "FAILED" appears, it means that the adjustment has failed.)
- 4) Press ■ button to display "ALL SV OFF".

Note: 1. If a test disc is dirty or has scratches, the complete adjustment may be not performed. Be sure to use a clean disc.
2. When adjusting the MO disc, the pre-recorded data on the MO disc is erased partly because WRITE POWER is on. Use an exclusive disc for adjustment.

How to check IVR, EFB, and focus/tracking/sled gain.

- ① Move the pick up to the center with ►► button and ◄◄ button.
- ② Press the MD ► button to display "FOCUS ON!".
- ③ Press the "ENTER" button to turn on "ALL SV ON".
- ④ Press the ■ button, and press the "DISP" button twice.
Check that value of the display "IV\$*: EF\$ ◇◇" is within the specifications shown below.
"*)" 13-17
"◇◇" 09-12
- ⑤ Repress the "DISP" button.
Check that value of the display "Gf**t##s△△" is within the range shown below.
"*)" 20-40
"##" 15-35
"△△" 15-35
- ⑥ When the adjustment is completed, press the ■ button to display "ALL SV OFF".

When adjusting PIT disc

- 1) Insert the test disc TGYS-1.
- 2) Press the ■ button to display "ALL SV OFF".
- 3) When the "EDIT" button is pressed, "AUTO ADJ" is displayed. When the adjustment is completed, "DONE" is displayed. (When the "FAILED" appears, it means that the adjustment has failed.)
- 4) When the adjustment is completed, press the ■ button to display "ALL SV OFF".

How to check IVR, EFB, and focus/tracking/sled gain

Perform the same operations as the MO disc check. The data on the display must be within the following range.

"IVR" 14-19
"EFB" 09-12
"Focus gain" 2A-45
"Tracking gain" 20-40
"Sled gain" 20-40

3-4. Error Rate Check (PIT disc)

- 1) Insert the test disc TGYS-1.
- 2) Move the pick up to the center with ►► button and ◄◄ button.
- 3) Press the "TAPE ◄►" button to display "SELECT PIT".
- 4) Press MD ► button to display "FOCUS ON!".
- 5) Press the "ENTER" button to display "ALL SV ON", and press the "DISP" button to display "Er00** 0000".
- 6) Check the value of ** is "30" or less.
- 7) When the adjustment is completed, press the ■ button to display "ALL SV OFF".

3-5. Record/Playback Error Rate Check (MO disc)

- 1) Insert the test disc MDW-60.
- 2) Move the pick up to the center with ►► button and ◄◄ button.
- 3) Press the "TAPE ◄►" button to display "SELECT GRV".
- 4) Press the "VOLUME DOWN" button to display "REC Analog".
- 5) Press the MD ► button to display "FOCUS ON!".
- 6) Press the "VOLUME DOWN" button after pressing the "ENTER" button to display "ALL SV ON".
- 7) When the "MD REC" button is repressed, the OWH moves. The recording starts from the 600 cluster. Then the display changes from "ALL SV ON" to "ADR**C##S".
- 8) After recording of about 15 seconds, press the ■ button to display "ALL SV OFF".
- 9) Press the "VOLUME UP" button to move up the OWH.

- 10) Press the MD ► button to display “FOCUS ON!”.
- 11) Press the “ENTER” to display “ALL SV ON”, and press the “DISP” button to display “Er00*:0000”.
Check that the value of ### is “20” or less.
- 12) After the adjustment is completed, press the ■ button to display “ALL SV OFF”.

3-6. UTOC ERASE

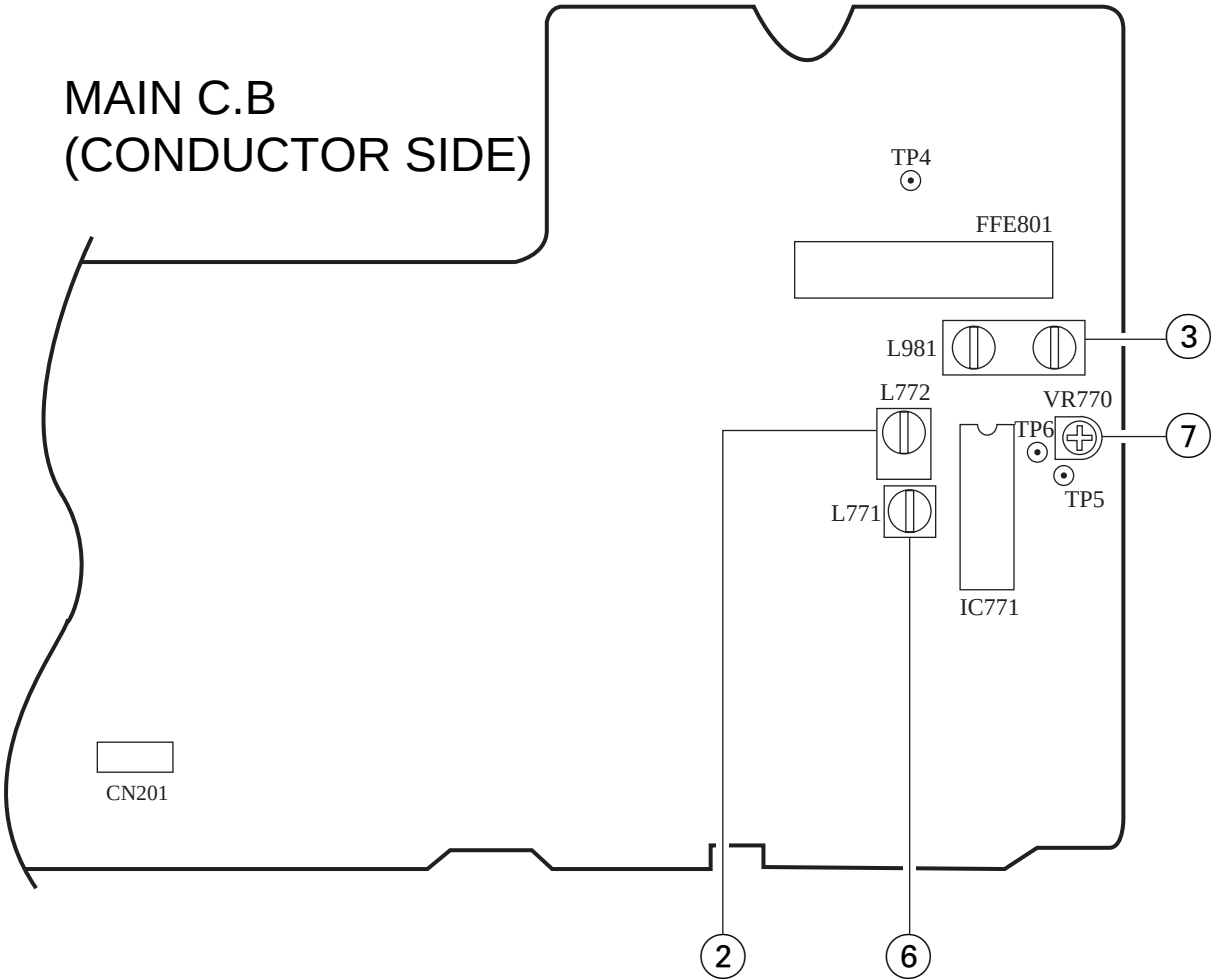
Perform the following procedure only when the recorded disc needs to be erased.

- 1) Insert a disc from which UTOC is going to be erased.
- 2) Move the pick up to the center with ►► button and ◀◀ button.
- 3) Press the “TAPE ◀►” button to display “SELECT GRV”.
- 4) Press the “MD REC” button to display “REC Analog”.
- 5) Press MD ► button to display “FOCUS ON!”.
- 6) Press the “ENTER” button to display “ALL SV ON”.
- 7) When the “CD → MD SYNCHRO RECORDING” button is pressed, “UTOC ERASE” appears on the display and UTOC is erased.
- 8) After the erasure is completed, “ALL SV OFF” appears on the display.

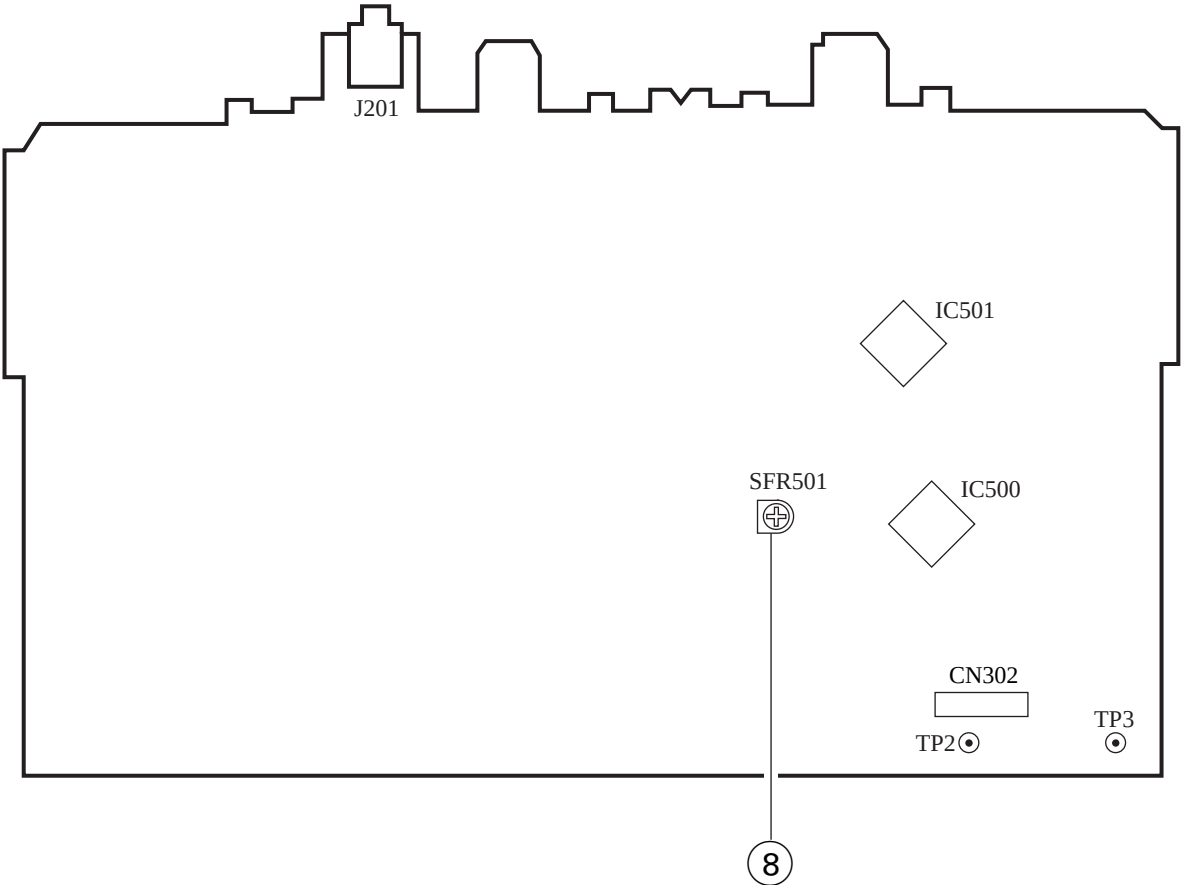
SERVICE JIG AND TOOLS

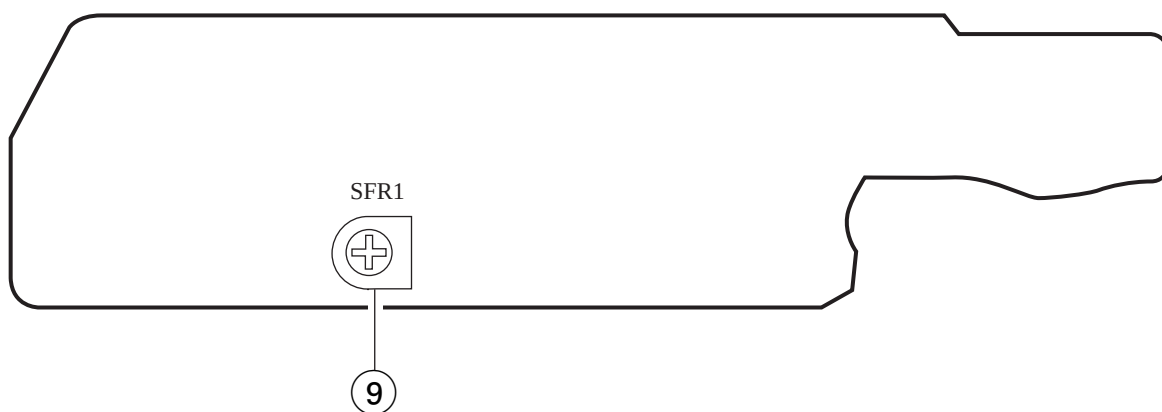
The following jigs and tools can be used.

	Usage	Part Name	Part No.
CD Block	CD mechanism stand	JIG, P-CD BY TORIKOSHI	SV-J00-018-010
	P.U. extension FFC	FF-CABLE, 16P 1.0 250mm	87-CE1-640-010
MD Block	S.T.I G-98-50	FFC, 8P-1.0	SV-J00-043-010
	S.T.I G-98-50	FFC, 14P-1.0	SV-J00-043-010

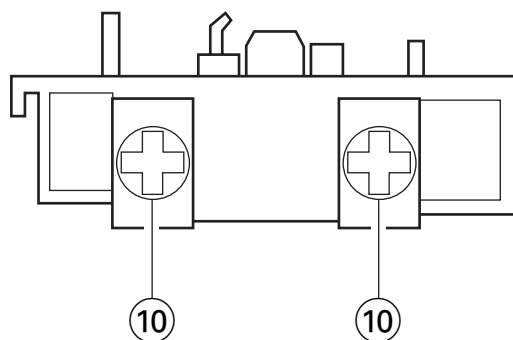


MICOM/CD C.B (CONDUCTOR SIDE)





R.P.E HEAD

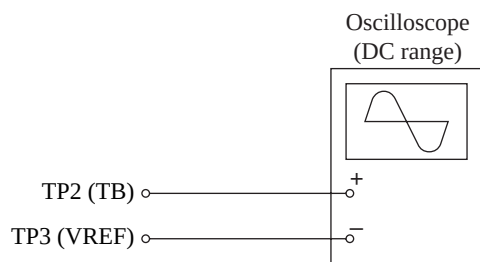


< TUNER SECTION >

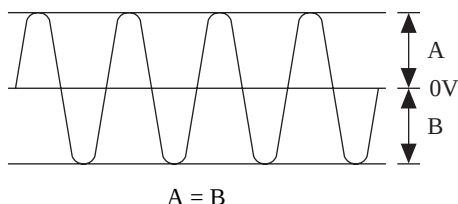
1. AM VT Check
 - Settings: • Test point: TP4 (VT)
 - Method: Set to AM 1611kHz and check that the test point is less than 5.6V.
2. AM IF Adjustment
 - Settings: • Test point: J201 (PHONES)
 - L772 450kHz
3. AM Tracking Adjustment
 - Settings: • Test point: J201 (PHONES)
 - Adjustment location: L981
 - Method: Set to AM 999kHz and adjust L981 so that the test point becomes maximum.
4. FM VT Check
 - Settings: • Test point: TP4 (VT)
 - Method: Set to FM 108.0MHz and check that the test point is more than less than 7.3V.
5. FM Tracking Check
 - Settings: • Test point: J201 (PHONES)
 - Method: Set to FM 98.0MHz and check that the test point is less than 20dBμV.
6. DC Balance/Mono Distortion Adjustment
 - Settings: • Test point: TP5, TP6
 - Adjustment location: L771
 - Input level: 54dB
 - Method: Set to FM 98.0MHz and adjust L771 so that the voltage between TP5 and TP6 becomes 0V±0.04V.
 - Next, check that the distortion is less than 1.3%.
7. FM Auto Stop Adjustment
 - Settings: • Adjustment location: VR770
 - Input level: 28dBμV
 - Method: Set to FM 98.0MHz and adjust VR770 so that the level 28dBμV±3dB.

< CD SECTION >

8. Tracking Balance Adjustment



- 1) Connect an oscilloscope to the test points TP2 (TB) and TP3 (VREF).
- 2) Turn on the power switch.
- 3) Insert test disc TCD-782 (YEDS-18) and press the CD PLAY button.
- 4) Adjust SFR501 so that the waveform on the oscilloscope is vertically symmetrical as shown in the figure below.
- 5) After the adjustment is completed, remove the connected lead wires from the terminals.



VOLT/DIV: 0.2V
TIME/DIV: 1mS

< DECK SECTION >

9. Tape Speed Adjustment

- Settings:
- Test tape: TTA-100
 - Test point: CN201
 - Adjustment location: SFR1
- Method: Playback the test tape by adjust SFR1 so that the frequency counter reads 3000Hz±10Hz. Check that the counter reading in the REV mode is within the range of ±45Hz of that in the FWD mode.

10. Azimuth Adjustment

- Settings:
- Test tape: TTA-300
 - Test point: J201 (PHONES)
 - Adjustment location: Head azimuth adjustment screw
- Method: Playback the 10kHz signal of the test tape and adjust the adjustment screw so that the output becomes the -0.5dB point below the maximum reading. The adjustment must ends with the clockwise rotation of the adjustment screw. Perform this adjustment in both FWD and REV directions. Fix the adjustment screw with adhesive agent upon completion of adjustment.

PRACTICAL SERVICE FIGURE

< TUNER SECTION >

< FM SECTION >

IHF Sensitivity: (THD 3%)	More than 20dB (at 88.0/98.0MHz) More than 22dB (at 108MHz)
Signal to noise ratio:	More than 55dB (at 98.0MHz)
Distortion: (Input: 54dB)	Less than 1.5% (at 98.0MHz)
Stereo separation:	More than 20dB (at 98.0MHz)
Intermediate frequency:	10.7MHz

< AM SECTION >

Sensitivity: (S/N 20dB)	54dB±6dB (at 603kHz) 52dB±6dB (at 999/1404kHz)
Signal to noise ratio:	More than 36dB (at 999kHz)
Distortion:	Less than 2.0% (at 999kHz)
Intermediate frequency:	450kHz

< DECK SECTION >

Tape speed:	3000Hz±60Hz
Wow & flutter: (W.R.M.S)	Less than 0.21%
Take-up torque:	30-55g-cm (FWD, REV)
F.F torque:	75-160g-cm
REW torque:	75-160g-cm
Back tension:	3±4g-cm (FWD, REV)
PB Output level:	190mV±1dB (LINE OUT)
REC/PB Output level:	190mV±2dB (LINE OUT)
Distortion (REC/PB):	Less than 3% (NORM, CrO ₂)
Noise level (PB):	Less than 3.5mV (DOLBY NR OFF, NORM)
Noise level (REC/PB):	Less than 3.5mV (DOLBY NR OFF, NORM)
Erasing ratio:	More than 55dB
REC bias frequency:	85kHz
Test tape:	NORMAL TTA-100 CrO ₂ TTA-200

IC DESCRIPTION

IC, CXD2652AR

Pin No.	Pin Name	I/O	Description
1	MNT0	O	Monitor output pin.
2	MNT1	O	Monitor output pin.
3	MNT2	O	Monitor output pin.
4	MNT3	O	Monitor output pin.
5	SWDT	I	Data input pin for micro-processor serial interface.
6	SCLK	I	Shift clock input pin for micro-processor serial interface.
7	XLAT	I	Latch input pin for micro-processor serial interface. Shut down: Latch.
8	SRDT	O	Data output pin for micro-processor serial interface.
9	SENS	O	Output internal status according to micro-processor serial interface address.
10	XRST	I	Reset input pin. "L": Reset.
11	SQSY	O	Disc sub-code Q synchronize / ADIP synchronize output.
12	DQSY	O	When source of the digital in is set to CD or MD, output sub-code Q synchronize of UbitCD or MD format.
13	RECP	I	Laser power switching input pin. "H": Record power. "L": Playback power.
14	XINT	O	Intrusion demand output pin. "L" setting when intrusion demand status is generated.
15	TX	I	Record data output enable signal input pin. "H": Enable.
16	OSCI	I	Crystal oscillator circuit input pin.
17	OSCO	O	Crystal oscillator circuit output pin. (OSCI inverted output)
18	XTSL	I	Switch input frequency of OSCI pin. (Connected to DVDD) "H": 512Fs (22.5792MHz), "L": 1024Fs (45.158MHz).
19	NC	–	Not used. (Connected to DVDD)
20	DVSS	–	Digital GND.
21	DIN	I	Input digital audio interface signal.
22	DOUT	O	Output digital audio interface signal.
23	ADDT	I	Analog record input pin. (Connected to external A/D converter output)
24	DADT	O	REC monitor output pin / Output decode audio data.
25	LRCK	O	Output LRCK (44.1kHz) to external audio block.
26	XBCK	O	Output bit clock (2.8224MHz) to external audio block.
27	FS256	O	Output 256Fs (11.2896MHz).
28	DVDD	–	Digital power supply.
29	A03	O	Output address for external DRAM.
30	A02	O	Output address for external DRAM.
31	A01	O	Output address for external DRAM.
32	A00	O	Output address for external DRAM.
33	A10	O	Output address for external DRAM. (Not used)
34	A04	O	Output address for external DRAM.
35	A05	O	Output address for external DRAM.
36	A06	O	Output address for external DRAM.
37	A07	O	Output address for external DRAM.
38	A08	O	Output address for external DRAM.
39	A11	O	Output address for external DRAM. (Not used.)

Pin No.	Pin Name	I/O	Description
40	DVSS	–	Digital GND.
41	XOE	O	Output enable pin for external DRAM.
42	XCAS	O	Output $\overline{\text{CAS}}$ for external DRAM.
43	A09	O	Output address for external DRAM.
44	XRAS	O	Output $\overline{\text{RAS}}$ for external DRAM.
45	XWE	O	Write enable for external DRAM.
46	D1	I/O	Data pass for external DRAM.
47	D0	I/O	Data pass for external DRAM.
48	D2	I/O	Data pass for external DRAM.
49	D3	I/O	Data pass for external DRAM.
50	MVCI	I	Clock input pin for external VCO (784fs). (Connected to DVSS)
51	ASYO	O	Full swing output pin for playback EFM ("L" = VSS, "H" = VDD).
52	ASY1	I	Input omparator slice voltage for playback EFM.
53	AVDD	–	Analog power supply.
54	BIAS	I	Input comparator bias current for playback EFM.
55	RFI	I	Input RF signal for playback EFM.
56	AVSS	–	Analog GND.
57	PDO	O	Output phase comparison for analog PLL of EFM decoder.
58	PCO	O	Output phase comparison for playback digital PLL, master PLL and record EFM PLL.
59	FILI	I	Input filter for playback digital PLL, master PLL and record EFM PLL.
60	FILO	O	Output filter for playback digital PLL, master PLL and record EFM PLL.
61	CLTV	I	Input internal VCO control voltage for playback digital PLL, master PLL and record EFM PLL.
62	PEAK	I	Input peak hold signal for beam spectrum.
63	BOTM	I	Input bottom hold signal for beam spectrum.
64	ABCD	I	Input beam spectrum signal.
65	FE	I	Input focus error signal.
66	AUXI	I	Backup input 1.
67	VC	I	Input midpoint voltage.
68	ADIO	O	Monitor output pin for A/D converter input signal. (Not used)
69	AVDD	–	Analog power supply.
70	ADRT	I	Input maximum voltage of A/D converter operation range.
71	ADRB	I	Input minimum voltage of A/D converter operation range.
72	AVSS	–	Analog GND.
73	SE	I	Input sled error signal.
74	TE	I	Input tracking error signal.
75	AUX2	I	Backup input 2. (Connected to AVDD)
76	DCHG	I	Connected to the power supply of low impedance. (Connected to AVDD)
77	APC	I	Input error signal for laser digital APC. (Connected to AVDD)
78	ADFG	I	Input ADIP binary data FM signal (22.05kHz $\pm$ 1kHz).
79	FOCNT	O	Current setting output pin for CXA2523AR.

Pin No.	Pin Name	I/O	Description
80	XLRF	O	Latch output pin for CXA2523AR control. Shut down: Latch.
81	CKRF	O	Shift clock output pin for CXA2523AR control.
82	DTRF	O	Data output pin for CXA2523AR control.
83	APCREF	O	Reference PWM output pin for laser APC.
84	LDDR	O	PWM output for laser digital APC. (Not used)
85	TRDR	O	Tracking servo drive PWM output (-).
86	TFDR	O	Tracking servo drive PWM output (+).
87	DVDD	–	Digital power supply.
88	FFDR	O	Focus servo drive PWM output (+).
89	FRDR	O	Focus servo drive PWM output (-).
90	FS4	O	Output 4Fs (176.4kHz). (Not used)
91	SRDR	O	Sled servo drive PWM output (-).
92	SFDR	O	Sled servo drive PWM output (+).
93	SPRD	O	Spindle servo drive PWM output. (PWM (-) or polarity)
94	SPFD	O	Spindle servo drive PWM output. (PWM (+) or PWM absolute value)
95	FGIN	I	Spindle CAV servo FG input. (Connected to DVSS.)
96	TEST 1	I	Test pin. (Connected to DVSS)
97	TEST 2	I	Test pin. (Connected to DVSS.)
98	TEST 3	I	Test pin. (Connected to DVSS.)
99	DVSS	–	Digital GND.
100	EFMO	O	Output "L" at playback, EFM (encode data) at recording.

IC, CXP81952M-547R

Pin No.	Pin Name	I/O	Description
1	MCAS	–	Not used.
2	MRAS	–	Not used.
3	BUP	–	Not used.
4	AMUTE	O	Output AUDIO MUTE signal.
5	ESK	O	Serial clock output pin for EEPROM interface.
6	EDO	O	Serial data output pin for EEPROM interface.
7	EDI	I	Serial data input pin for EEPROM interface.
8	ECS	O	Output EEPROM chip select signal.
9	NC	–	Not used.
10	RFLCT	I	Input terminal for DISC reflection rate detection SW.
11	NC	–	Not used.
12	LS	I	Input pin for pickup inner-circumference detect switch.
13	LDSW	I	Loading mechanism, EJECT position detect switch input.
14	PBSW	I	Loading mechanism, PB position detect switch input. (Not used)
15	RECSW	I	Loading mechanism, REC position detect switch input.
16 ~ 17	NC	–	Not used.
18	ACOFF	–	Not used.
19	SREQ	I	Input system-computer send request signal for system-computer interface.
20	EXTDIN	O	External digital IN permit signal output.
21	SLOW	O	Loading mechanism speed control signal output.
22	LOAD	O	Loading mechanism operating-direction control signal output 1.
23	EJECT	O	Loading mechanism operating-direction control signal output 2.
24	MREQ	O	Output MD microcomputer send request signal for system-computer interface.
25	DRIVE	O	Output EFM driver ON/OFF signal.
26 ~ 36	NC	–	Not used.
37	MP	–	Connected to VSS.
38	SRST	I	Input MD microcomputer reset signal.
39	DGND	–	Connected to VSS.
40	XTALO	O	Crystal oscillator terminal 1 for system clock oscillator.
41	XTALI	I	Crystal oscillator terminal 2 for system clock oscillator.
42	ARDY	I	Input READY signal for system-computer interface.
43	SIN	I	Input serial data for system-computer interface.
44	SOUT	O	Output serial data for system-computer interface.
45	ACLK	O	Output serial clock for system-computer interface.
46	XLAT	O	Output latch signal for CXD2652AR interface.
47	XRST	O	Output reset signal for CXD2652AR.
48	XSTBY	O	Output standby signal for CXA2523AR.
49	NC	–	Not used.
50	AVSS	–	Connected to VSS.
51	AVREF	–	Connected to VDD.
52	AVDD	–	Connected to VDD.

Pin No.	Pin Name	I/O	Description
53 ~ 55	NC	–	Not used (PLL UP).
56	SLF	–	Not used (PLL UP).
57	SLR	–	Not used (PLL UP).
58	TEMP	I	S-8110AMP OUT signal input pin.
59	MAGIC	–	Not used (PLL UP).
60	NC	–	Not used (PLL UP).
61	TEST	–	Not used (PLL UP).
62	DISCPRO	I	Input pin for prevention of DISC error erase SW.
63	MNT3	I	Monitor signal input pin 3 for CXD2652AR.
64	MNT2	I	Monitor signal input pin 2 for CXD2652AR.
65	MNT1	I	Monitor signal input pin 1 for CXD2652AR.
66	MNT0	I	Monitor signal input pin 0 for CXD2652AR.
67	SENS	I	Input SENS signal for CXD2652AR.
68	FLG	I	Monitor FLAG included in SRDT of CXD2652AR interface.
69 ~ 70	NC	–	Not used.
71	P-CONT	–	Not used.
72	RFSW	–	Not used.
73 ~ 74	NC	–	Not used.
75	DQSY	I	Synchronize input pin for digital-in SUB-Q.
76	XINT	I	Status synchronize input pin for CXD2652AR.
77	SRDT	I	Serial data input pin for CXD2652AR interface.
78	SWDT	O	Serial data output pin for CXD2652AR interface.
79	SCLK	O	Serial clock output pin for CXD2652AR interface.
80	SQSY	I	SUB-Q, ADIP synchronize input.
81 ~ 83	NC	–	Not used.
84	TXI	–	Connected to VSS.
85	TXO	–	Open. (Not used)
86	VSS	–	Connected to VSS.
87	VDD	–	Connected to VDD.
88	NC	–	Connected to VDD.
89	NC	–	Not used.
90	DRVMUTE	O	Outputs MUTE signal for BA5970FP.
91 ~ 94	NC	–	Not used.
95	RECP	O	Laser power switch signal output pin.
96	TX	O	Output permission signal of record data output.
97	MOD	O	Output ON/OFF signal for high frequency modulation circuit.
98	OPMUTE	O	Laser MUTE signal output pin.
99	ARST	O	AK4516VF reset signal output pin.
100	DENF	O	De-emphasis ON/OFF signal output pin.

IC, CXA2523AR

Pin No.	Pin Name	I/O	Description
1	I	I	Input "I" RF signal converted to I-V.
2	J	I	Input "J" RF signal converted to I-V.
3	VC	O	Output voltage for VCC/2.
4	A	I	Input current for main beam servo signal A.
5	B	I	Input current for main beam servo signal B.
6	C	I	Input currentt for main beam servo signal C.
7	D	I	Input current for main beam servo signal D.
8	E	I	Input current for side beam servo signal E.
9	F	I	Input current for side beam servo signal F.
10	PD	I	Input beam spectrum monitor signal.
11	APC	O	Output laser APC.
12	APCREF	I	Input reference voltage for laser power setting.
13	GND	–	GND.
14	TEMPI	I	Temperature sensor connection pin. (Not used)
15	TEMPR	I	Temperature sensor connection pin. Output reference voltage. (Not used)
16	SWDT	I	Input micro-processor serial interface data.
17	SCLK	I	Input micro-processor serial interface shift clock.
18	XLAT	I	Input micro-processor serial interface latch. "L": Latch.
19	XSTBY	I	Standby setting pin. "H": Normal mode, "L": Standby.
20	FOCNT	I	Internal current setting pin.
21	VREF	O	Output reference voltage. (Not used)
22	EQADJ	I/O	EQ central frequency setting pin.
23	3TADJ	I/O	BPF3T central frequency setting pin.
24	VCC	–	Power supply pin.
25	WBLADJ	I/O	BPF22 central frequency setting pin.
26	TE	O	Output tracking error signal.
27	CSLED	–	LPF capacitor connection pin for SLED error signal.
28	SE	O	Output SLED error signal.
29	ADFM	O	Output ADIP FM signal.
30	ADIN	I	Input ADIP signal comparator.
31	ADAGC	–	ADIPAGC capacitor connection pin.
32	ADFG	O	Output ADIP2 binary data signal.
33	AUX	O	13 output / Output temperature signal. Switched by serial command.
34	FE	O	Output focus error signal.
35	ABCD	O	Output beam spectrum signal for main beam servo detector.
36	BOTM	O	Output bottom hold signal for RF/ABCD.
37	PEAK	O	Output peak hold signal for RF/ABCD.
38	RF	O	RF equalizer output pin.
39	RF AGC	–	RFAGC capacitor connection pin.
40	AGCI	I	RFAGC input pin.
41	COMPO	O	User comparator output pin. (Not used)

Pin No.	Pin Name	I/O	Description
42	COMPP	I	User comparator non-inverted input pin. (Connected to GND)
43	ADDC	I/O	Capacitor connection pin for ADIP amplifier on return circuit.
44	OPO	O	Output pin for user operational amplifier. (Not used)
45	OPN	I	Non-inverted input pin for user operational amplifier.
46	RFO	O	RF amplifier output pin. Check point for eye pattern.
47	MORFI	I	Input pin where Groove RF signal is AC coupled.
48	MORFO	O	Output pin for Groove RF signal.

IC, LA9241ML

Pin No.	Pin Name	I/O	Description
1	FIN2	I	Pin to which external pickup photo diode is connected. RF signal is created by adding with the FIN1 pin signal. FE signal is created by subtracting from the FIN1 pin signal.
2	FIN1	I	Pin to which external pickup photo diode is connected.
3	E	I	Pin to which external pickup photo diode is connected. TE signal is created by subtracting from the F pin signal.
4	F	I	Pin to which external pickup photo diode is connected.
5	TB	I	DC component of the TE signal is input.
6	TE–	I	Pin to which external resistor setting the TE signal gain is connected between the TE pin.
7	TE	O	TE signal output pin.
8	TESI	I	TES “Track Error Sense” comparator input pin. TE signal is passed through a band-pass filter then input.
9	SCI	I	Shock detection signal input pin.
10	TH	I	Tracking gain time constant setting pin.
11	TA	O	TA amplifier output pin.
12	TD–	I	Pin to which external tracking phase compensation constants are connected between the TD and VR pins.
13	TD	I	Tracking phase compensation setting pin.
14	JP	I	Tracking jump signal (kick pulse) amplitude setting pin.
15	TO	O	Tracking control signal output pin.
16	FD	O	Focusing control signal output pin.
17	FD–	I	Pin to which external focusing phase compensation constants are connected between the FD and FA pins.
18	FA	I	Pin to which external focusing phase compensation constants are connected between the FD– and FA– pins.
19	FA–	I	Pin to which external focusing phase compensation constants are connected between the FA and FE pins.
20	FE	O	FE signal output pin.
21	FE–	I	Pin to which external FE signal gain setting resistor is connected between the FE pin.
22	AGND	—	Analog signal GND.
23	NC	—	No connection.
24	SP	O	Single ended output of the CV+ and CV– pin input signal.
25	SPG	I	Pin to which external spindle gain setting resistor in 12 cm mode is connected.
26	SP–	I	Pin to which external spindle phase compensation constants are connected together with SPD pin.
27	SPD	O	Spindle control signal output pin.
28	SLEQ	I	Pin to which external sled phase compensation constants are connected.
29	SLD	O	Sled control signal output pin.
30, 31	SL–, SL+	I	Sled advance signal input pin from microprocessor.
32, 33	JP–, JP+	I	Tracking jump signal input pin from DSP.
34	TGL	I	Tracking gain control signal input from DSP. Low gain when TGL = H.
35	TOFF	I	Tracking off control signal input pin from DSP. Off when TOFF = H.

Pin No.	Pin Name	I/O	Description
36	TES	O	Pin from which TES signal is output to DSP.
37	HFL	O	“High Frequency Level” is used to judge whether the main beam position is on top of bit or on top of mirror.
38	SLOF	I	Sled servo off control input pin.
39, 40	CV–, CV+	I	CLV error signal input pin from DSP.
41	RFSM	O	RF output pin.
42	RFS–	I	RF gain setting and EFM signal 3T compensation constant setting pin together with RFSM pin.
43	SLC	O	“Slice Level Control” is the output pin which controls the RF signal data slice level by DSP.
44	SLI	I	Input pin which control the data slice level by the DSP.
45	DGND	—	Digital system GND.
46	FSC	O	Output pin to which external focus search smoothing capacitor is connected.
47	TBC	I	“Tracking Balance Control” EF balance variable range setting pin.
48	NC	—	No connection.
49	DEF	O	Disc defect detector output pin.
50	CLK	I	Reference clock input pin. 4.23 MHz of the DSP is input.
51	CL	I	Microprocessor command clock input pin.
52	DAT	I	Microprocessor command data input pin.
53	CE	I	Microprocessor command chip enable input pin.
54	DRF	O	“Detect RF” RF level detector output.
55	FSS	I	“Focus Search Select” focus search mode ($\pm$ search/+ search) select pin.
56	VCC2	—	Servo system and digital system Vcc pin.
57	REFI	—	Pin to which external bypass capacitor for reference voltage is connected.
58	VR	O	Reference voltage output pin.
59	LF2	I	Disc defect detector time constant setting pin.
60	PH1	I	Pin to which external capacitor for RF signal peak holding is connected.
61	BH1	I	Pin to which external capacitor for RF signal bottom holding is connected.
62	LDD	O	APC circuit output pin.
63	LDS	I	APC circuit input pin.
64	VCC1	—	RF system Vcc pin.

IC, LC78622ED

Pin No.	Pin Name	I/O	Description	
1	DEFI	I	Defect sense signal (DEF) input pin. (Connect to 0V when not used).	
2	TAI	I	For PLL.	Test signal input pin with built-in pull-down resistor. Be sure to connect to 0V.
3	PDO	O		Phase comparator output pin to control external VCO.
4	VVSS	—		GND pin for built-in VCO. Be sure to connect to 0V.
5	ISSET	I		Pin to which external resistor adjusting the PDO output current.
6	VVDD	—		Power supply pin for built-in VCO.
7	FR	I		Pin for VCO frequency range adjustment.
8	VSS	—	Digital system GND. Be sure to connect to 0V.	
9	EFMO	O	For slice level control.	EFM signal output pin.
10	EFMIN	I		EFM signal input pin.
11	TEST2	I	Test signal input pin with built-in pull-down resistor. Be sure to connect to 0V.	
12, 13	CLV+, CLV–	O	Disc motor control output. Three level output is possible using command.	
14	V/P	O	Rough servo or phase control automatic selection monitoring output pin. Rough servo at H. Phase servo at L.	
15	HFL	I	Track detect signal input pin. Schmidt input.	
16	TES	I	Tracking error signal input pin. Schmidt input.	
17	TOFF	O	Tracking OFF output pin.	
18	TGL	O	Tracking gain selection output pin. Gain boost at L.	
19, 20	JP+, JP–	O	Track jump control signal output pin. Three level output is possible using command.	
21	PCK	O	EFM data playback clock monitoring pin 4.3218 MHz when phase is locked in.	
22	FSEQ	O	Sync signal detection output pin. H when the sync signal which is detected from EFM signal and thesync signal which is internally generated agree.	
23	VDD	—	Digital system power supply pin.	
24-28	SL+ - PUIN	I/O	General purpose input/output pin 1 to 5.	The pin is controlled by the serial data command from microprocessor. When the pin is not used, set the pin to the input terminal and connect to 0V, or alternately set the pin to output terminal and leave the pin open.
29	EMPH	O	De-emphasis monitor output pin. De-emphasis disc is being played back at H.	
30	C2F	O	C2 flag output pin.	
31	DOUT	O	DIGITAL OUT output pin. (EIAJ format).	
32, 33	TEST3, TEST4	I	Test signal input pin with built-in pull-down resistor. Be sure to connect to 0V.	
34	N.C.	—	Not used. Set the pin to open.	
35	MUTEL	O	L-channel 1-bit DAC.	L-channel mute output pin.
36	LVDD	—		L-channel power supply pin.
37	LCHO	O		L-channel output pin.
38	LVSS	—		L-channel GND. Be sure to connect to 0V.
39	RVSS	—	R-channel 1-bit DAC.	R-channel GND. Be sure to connect to 0V.
40	RCHO	O		R-channel output pin.
41	RVDD	—		R-channel power supply pin.
42	MUTER	O		R-channel mute output pin.

Pin No.	Pin Name	I/O	Description
43	XVDD	—	Crystal oscillator power supply pin.
44	XOUT	O	Pin to which external 16.9344 MHz crystal oscillator is connected.
45	XIN	I	
46	XVSS	—	Crystal oscillator GND pin. Be sure to connect to 0V.
47	SBSY	O	Subcode block sync signal output pin.
48	EFLG	O	C1, C2, single and dual correction monitoring pin.
49	PW	O	Subcode P, Q, R, S, T, U and W output pin.
50	SFSY	O	Subcode frame sync signal output pin. Falls down when subcode enters standby.
51	SBCK	I	Subcode read clock input pin. Schmidt input. (Be sure to connected to 0V when not in use.)
52	FSX	O	Pin outputting the 7.35 kHz sync signal which is generated by dividing frequency of crystal oscillator.
53	WRQ	O	Subcode Q output standby output pin.
54	RWC	I	Read/write control input pin. Schmidt input.
55	SQOUT	O	Subcode Q output pin.
56	COIN	I	Command input pin from microprocessor.
57	$\overline{\text{CQCK}}$	I	Command input read clock or subcode read input clock from SQOUT pin
58	$\overline{\text{RES}}$	I	LC78622 reset input pin. Set this pin to L once when the main power is turned on.
59	TST11	O	Test signal output pin. Use this pin as open (normally L output).
60	16M	O	16.9344 MHz output pin.
61	4.2M	O	4.2336 MHz output pin.
62	TEST5	I	Test signal input pin with built-in pull-down resistor. Be sure to connect to 0V.
63	$\overline{\text{CS}}$	I	Chip select signal input pin with built-in pull-down resistor. Be sure to connect to 0V while it is not controlling.
64	TEST1	I	Test signal input pin without built-in pull-down resistor. Be sure to connect to 0V.

Note: The same potential must be applied to the respective power supply terminals. (VDD, VVDD, LVDD, RVDD, XVDD)

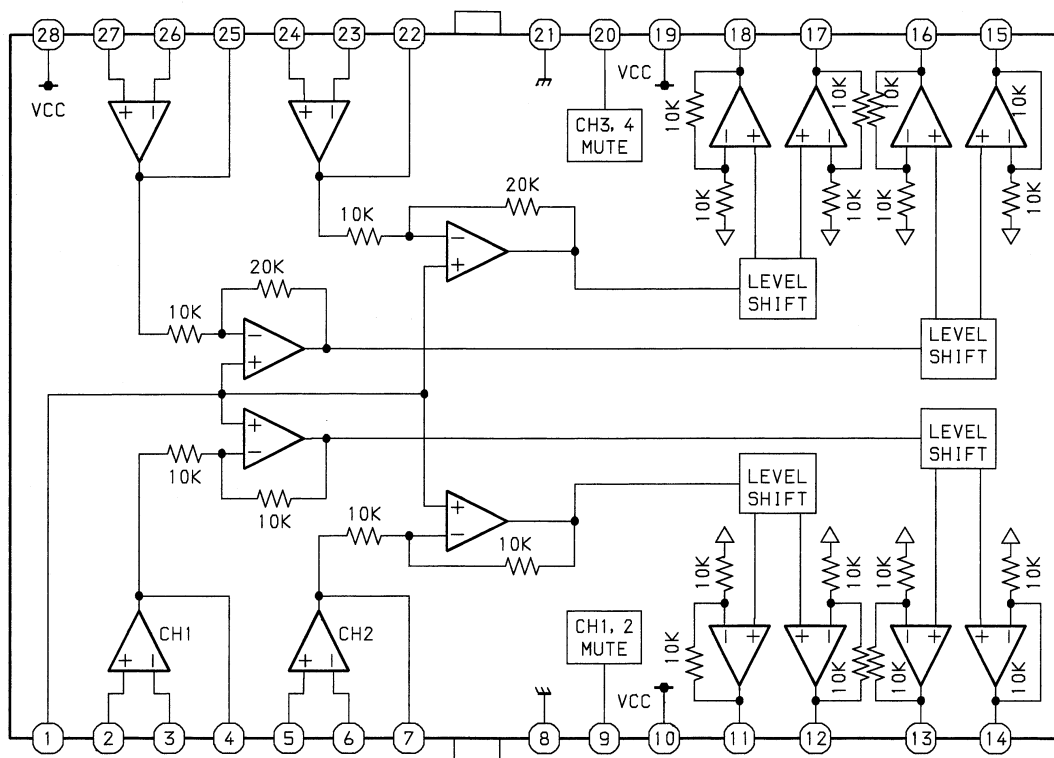
IC, LC875164A

Pin No.	Pin Name	I/O	Description
1	MOTOR	O	Motor control output. "H": when operating.
2	—	O	Not used.
3	LA	O	BH3862FS serial latch output.
4	CL	O	BH3862FS serial clock output.
5	DA	O	BH3862FS serial data output.
6	Q-SW	O	Q-surround control.
7	SHIFT	O	Clock shift output.
8	ACIN	I	AC input detection.
9	REMO	I	Remote control received signal input.
10	RES	I	Reset input terminal.
11	XT1	I	32.768 kHz OSC input terminal.
12	XT2	O	32.768 kHz OSC output terminal.
13	GND	—	GND terminal.
14	CF1	I	5.6 MHz OSC input terminal.
15	CF2	O	5.6 MHz OSC output terminal.
16	+B	—	Power supply terminal.
17	—	O	Not used.
18	AD-1	I	A/D key input.
19	AD-2	I	A/D key input.
20	DOOR	I	CD door detection.
21	TUSW1	I	Tuner destination selection input.
22	TUSW2	I	Tuner destination selection input.
23	JOG-1	I	JOG-1 detection. (A output)
24	JOG-2	I	JOG-2 detection. (B output)
25	NC	—	Not used.
26	SRST	O	Microprocessor reset output for communication with MD microprocessor.
27	ARDY	O	Ready signal output for communication with MD microprocessor.
28	SREQ	O	Output request from system microprocessor for communication with MD microprocessor.
29	MREQ	I	Output request from system microprocessor for communication with MD microprocessor.
30	SIN	I	Serial data input for communication with MD microprocessor.
31	SOUT	O	Serial data output for communication with MD microprocessor.
32	ALCK	I	Serial clock input for communication with MD microprocessor.
33	FLDI	O	FL data output.
34	FLCE	O	FL chip enable.
35	FLCK	O	FL clock output.
36	NC	—	Not used.
37	NC	—	Not used.
38	DI	O	EEPROM serial data output.
39	DO	I	EEPROM serial data input.

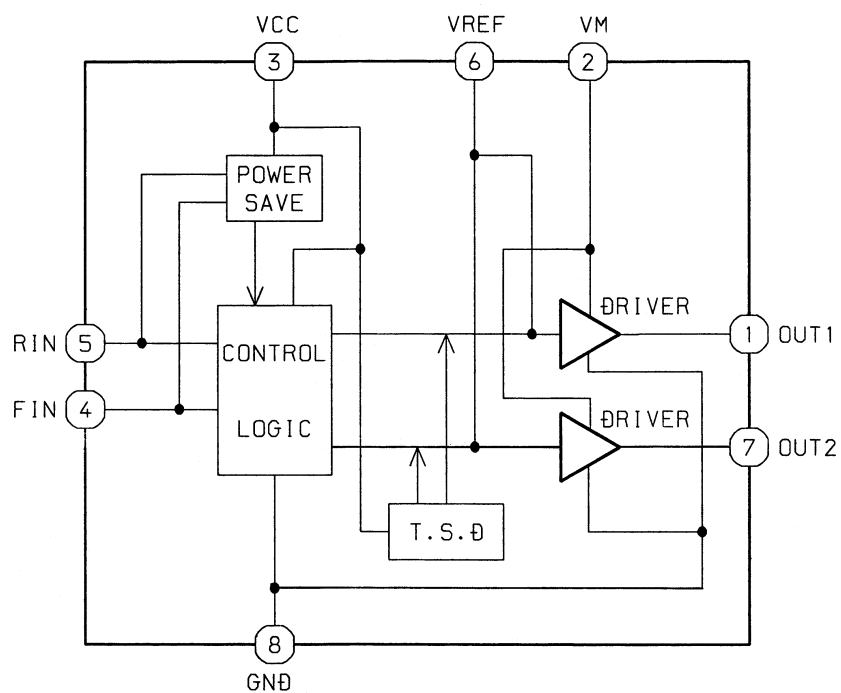
Pin No.	Pin Name	I/O	Description
40	SK	O	EEPROM serial clock output.
41	CS	O	EEPROM chip selection.
42	NC	—	Not used.
43	POWER	O	Power regulator control output.
44	+B	—	Power supply input.
45	GND	—	GND terminal.
46	—	O	Not used.
47	CD+B	O	CD regulator control output. “H”: when operating.
48	TU+B	O	TU regulator control output. “H”: when operating.
49	CD	O	CD LED control output. “L”: to turn on the LED.
50	MD	O	MD LED control output. “L”: to turn on the LED.
51	TUNER	O	Tuner LED control output. “L”: to turn on the LED.
52	TAPE	O	Tape LED control output. “L”: to turn on the LED.
53	STANDBY	O	Stand-by LED control output. “L”: to turn on the LED.
54	—	O	Not used.
55	RELAY	O	Relay control output. “H”: when operating.
56	MUTE	O	MUTE operation. “H”: when operating.
57	CE	O	LC72121 chip enable output.
58	CLK	O	LC72121 serial clock output.
59	DI	O	LC72121 serial data output.
60	DO	I	LC72121 serial data input.
61	ST	I	Stereo reception detection.
62	COIN	O	CD serial data output.
63	CQCK	O	CD serial clock output.
64	SQOUT	I	CD sub-code Q input.
65	WRQ	I	CD sub-code Q reading standby.
66	DRF	I	CD RF level detection input.
67	NC	—	Not used.
68	RWC	O	CD input/output selector control.
69	DOOR+	O	CD loading “+” output.
70	GND	—	GND terminal.
71	+B	—	Power supply input.
72	DOOR-	O	CD loading “-” output.
73	REC A	I	REC SW-A detection. “L”: when detected.
74	REC B	I	REC SW-B detection. “L”: when detected.
75	TAPEIN	I	Cassette detection input. “L”: when detected.
76	STOP	I	Stop detection input. “L”: when detected.
77	AS	I	Auto stop detection input.
78	PB/REC	O	Cassette PLAY mode control output. PLAY: “L”, REC: “H”.
79	BEAT	O	Beat selector output. Initially: “L”
80	PL	O	Plunger solenoid control output. “H”: when operating.

IC BLOCK DIAGRAM

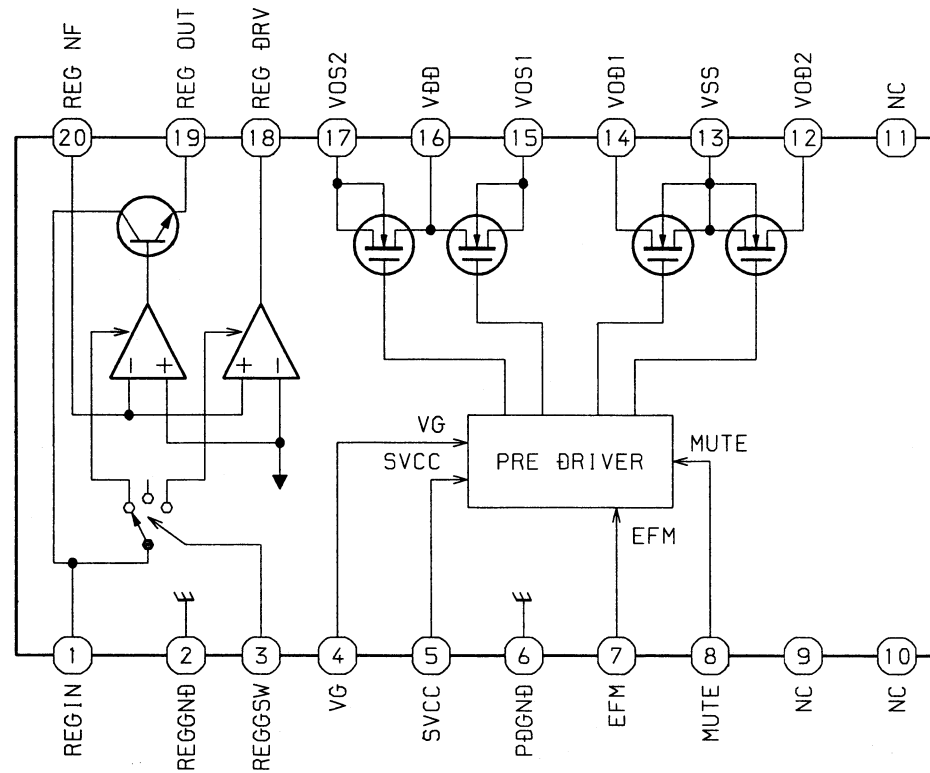
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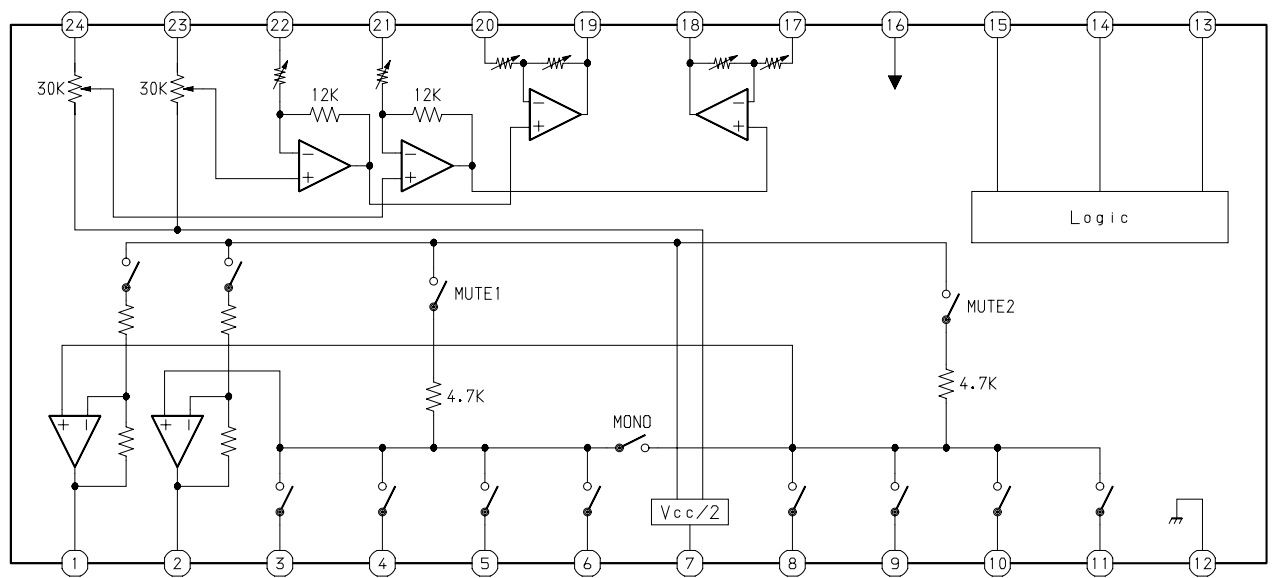
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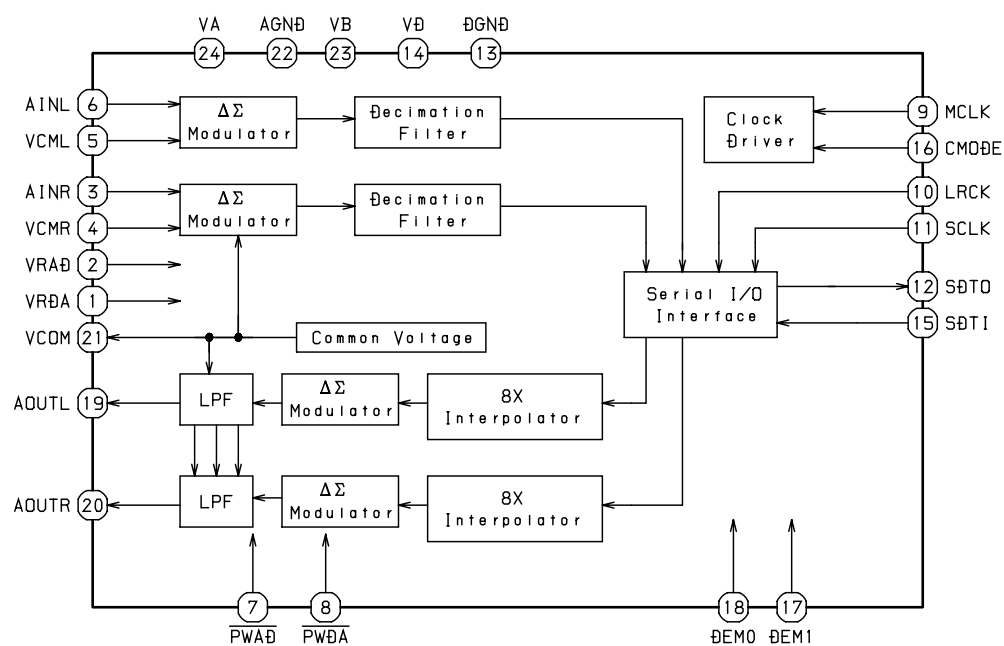
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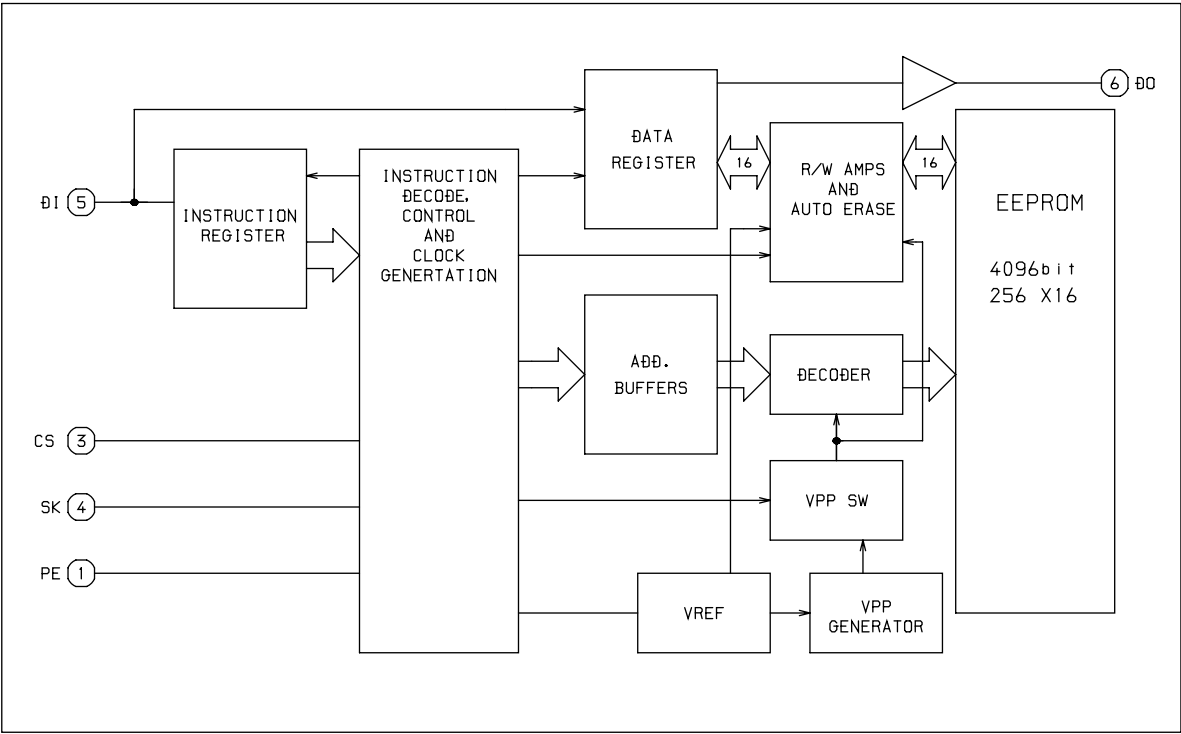
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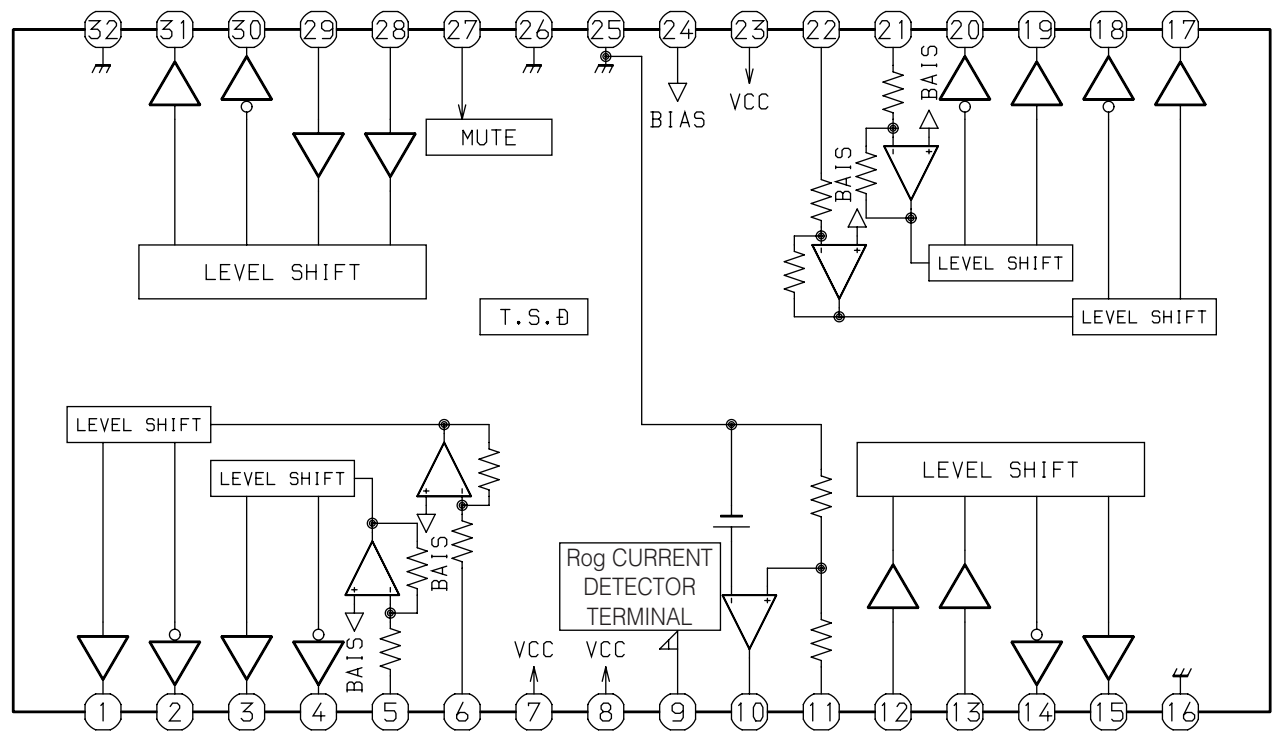
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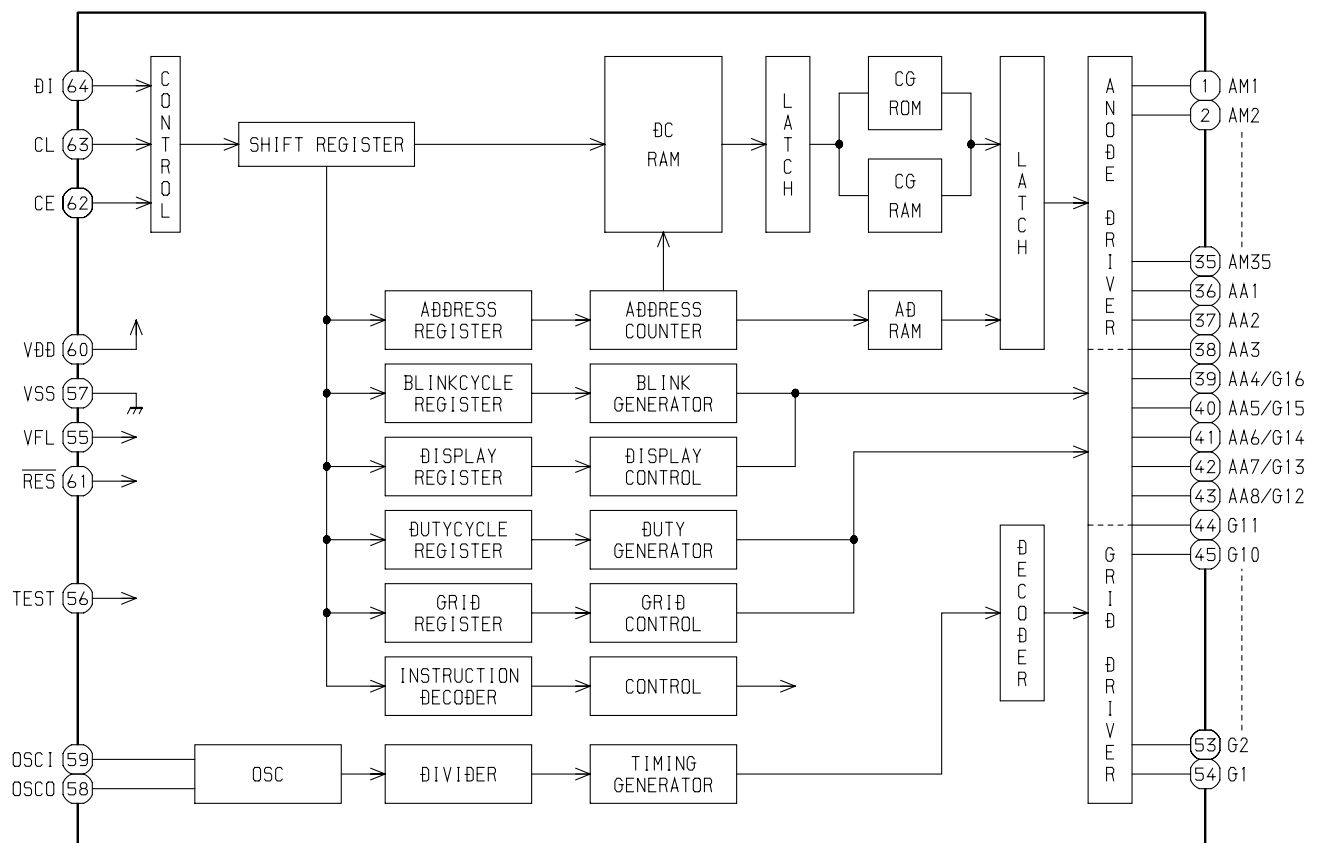
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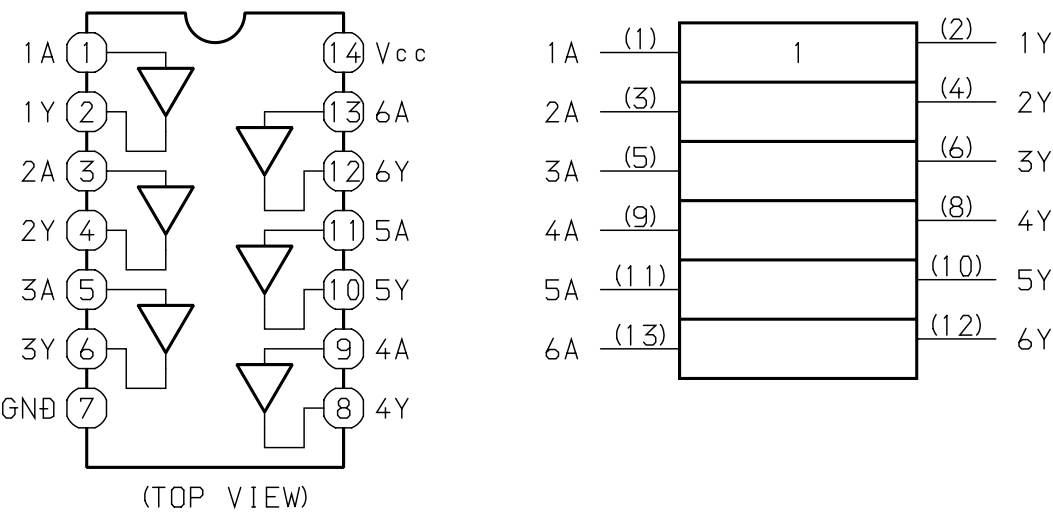
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IC, LC75710NE

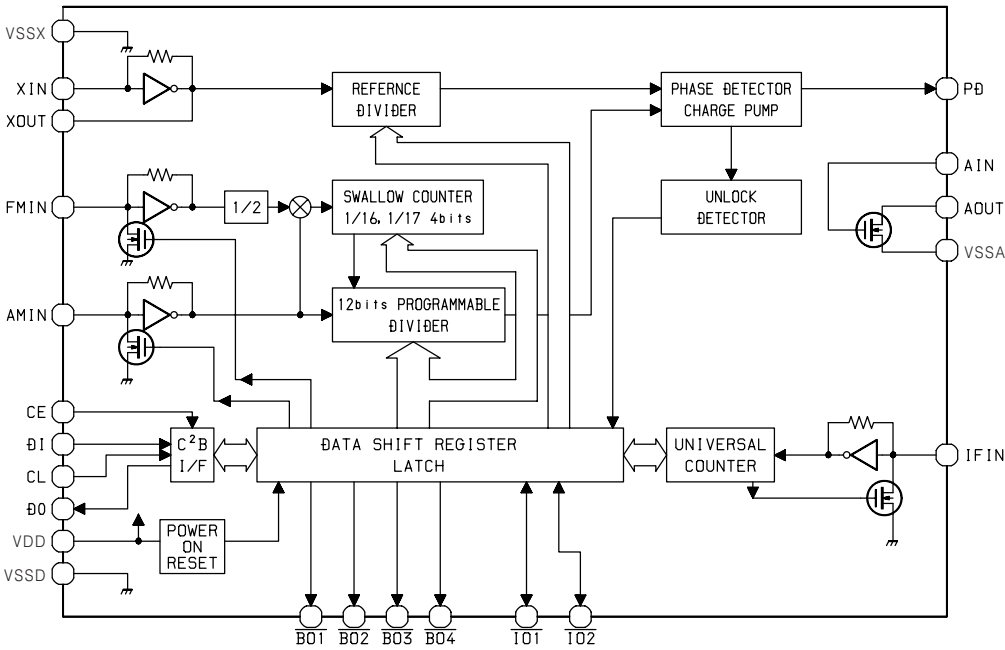


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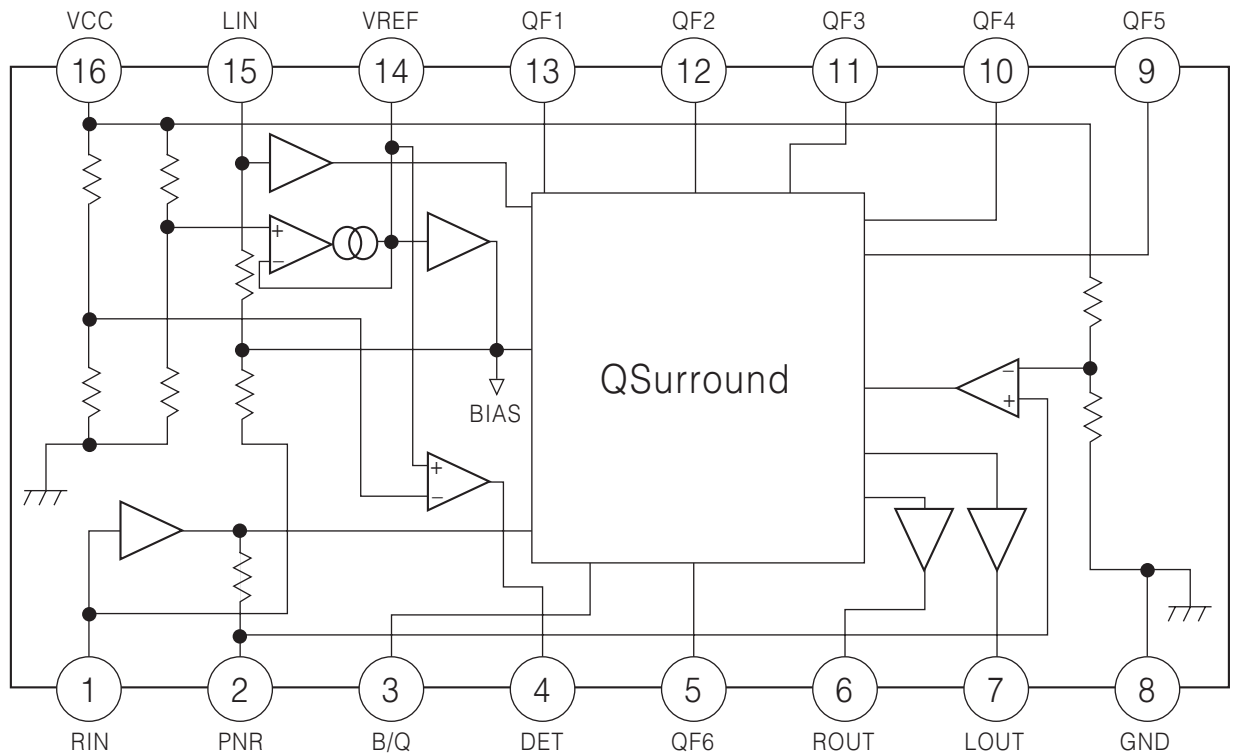


A	Y
L	L
H	H

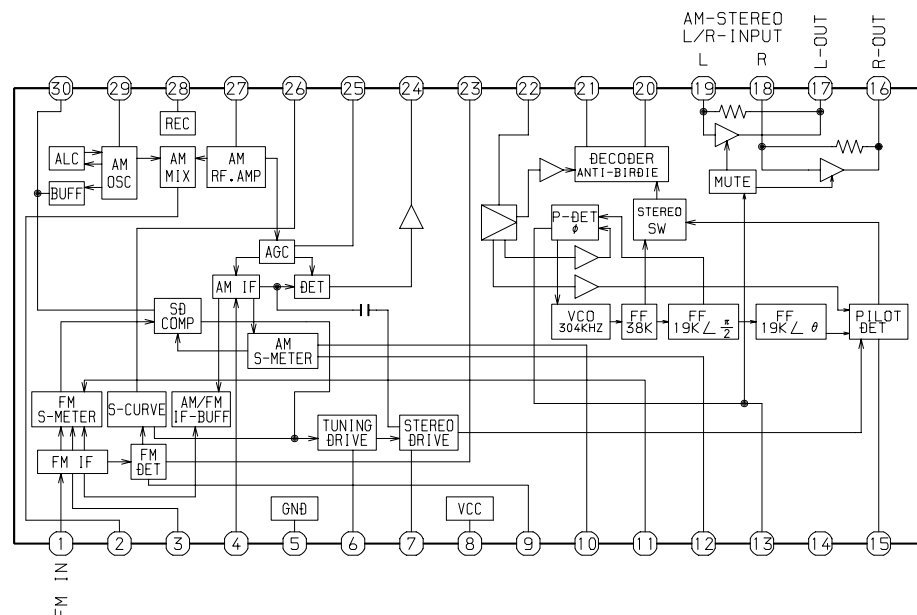
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IC, MM1454XFBE



IC, LA1837NL



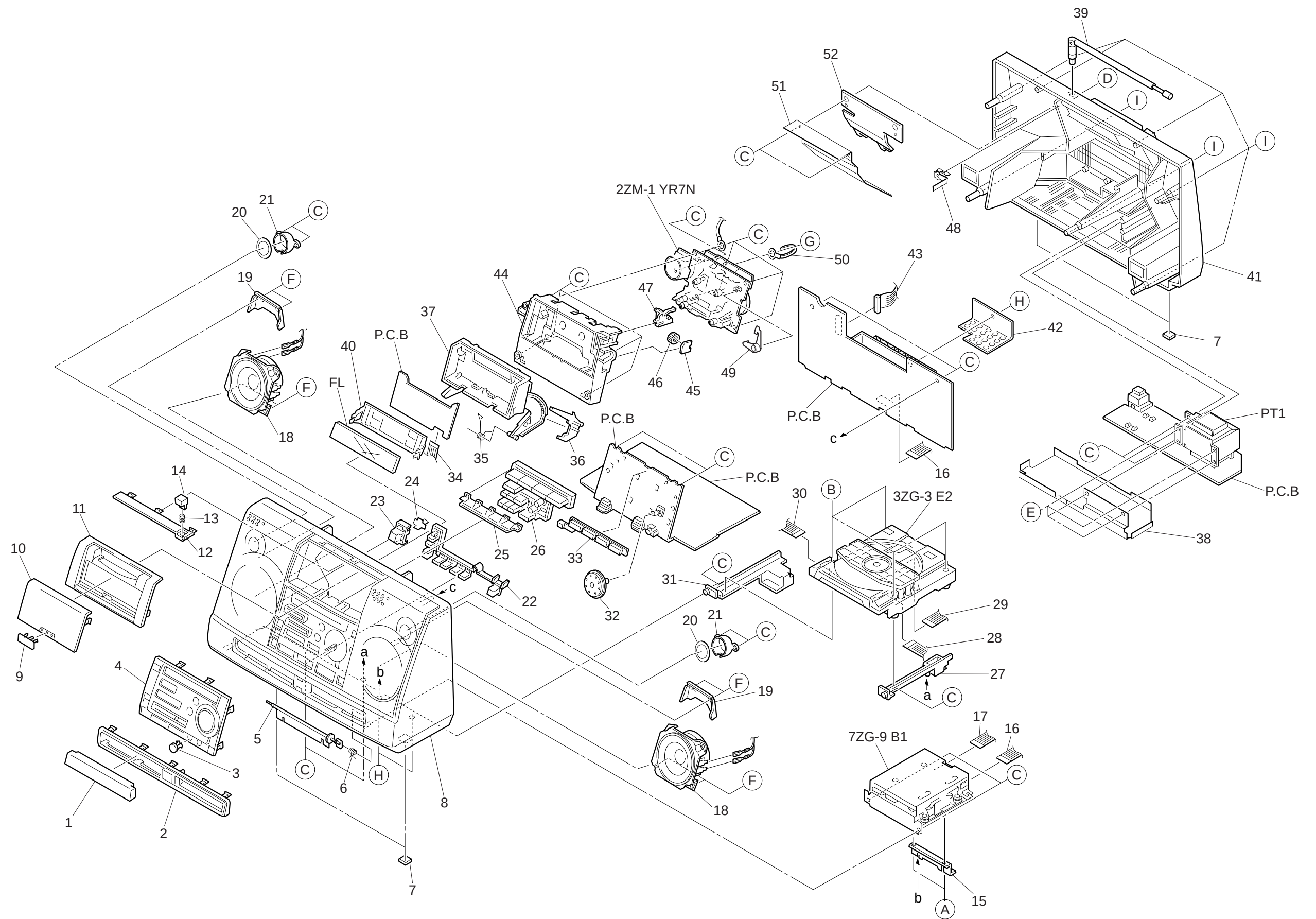
MECHANICAL PARTS LIST 1/1

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

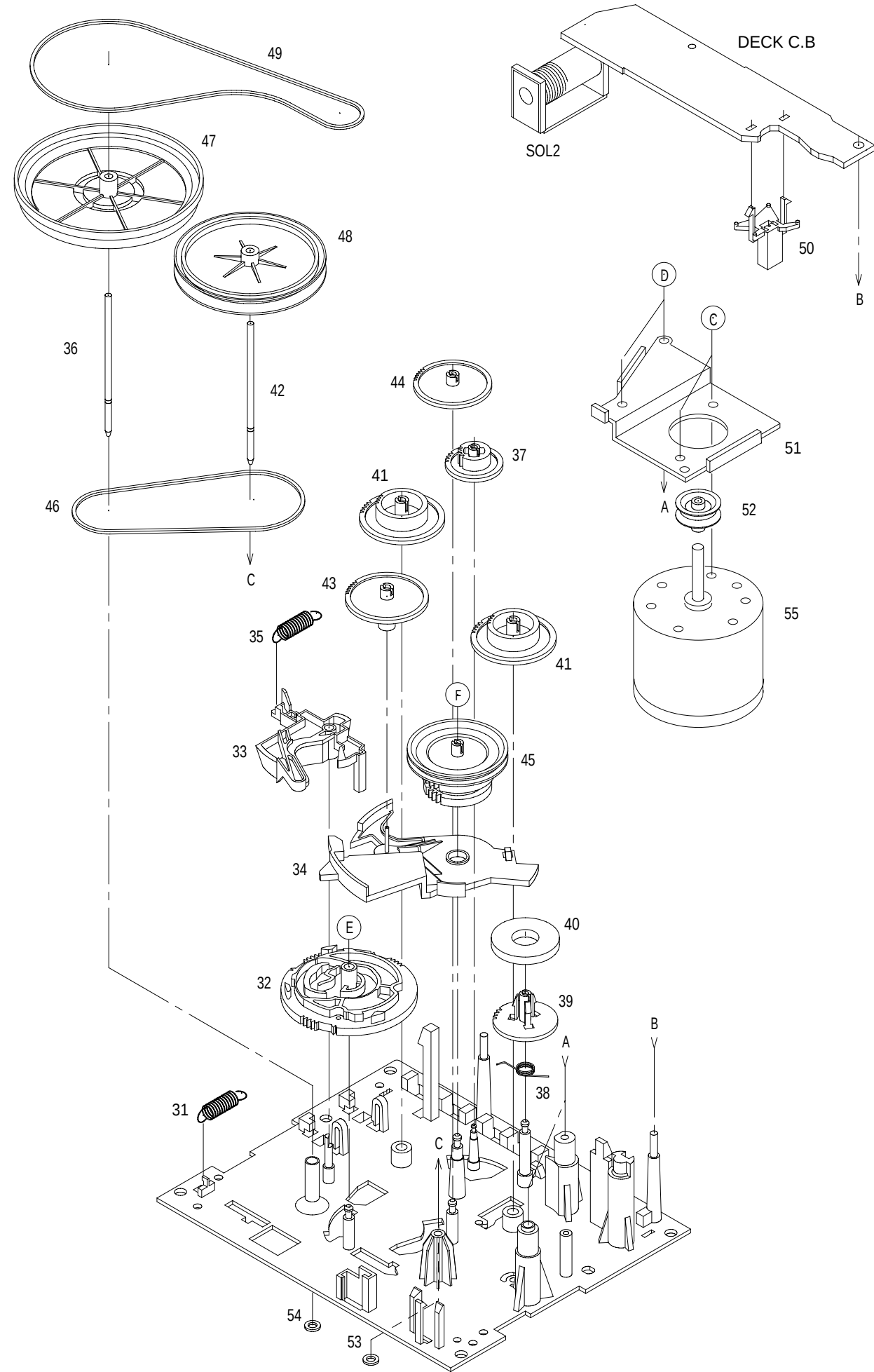
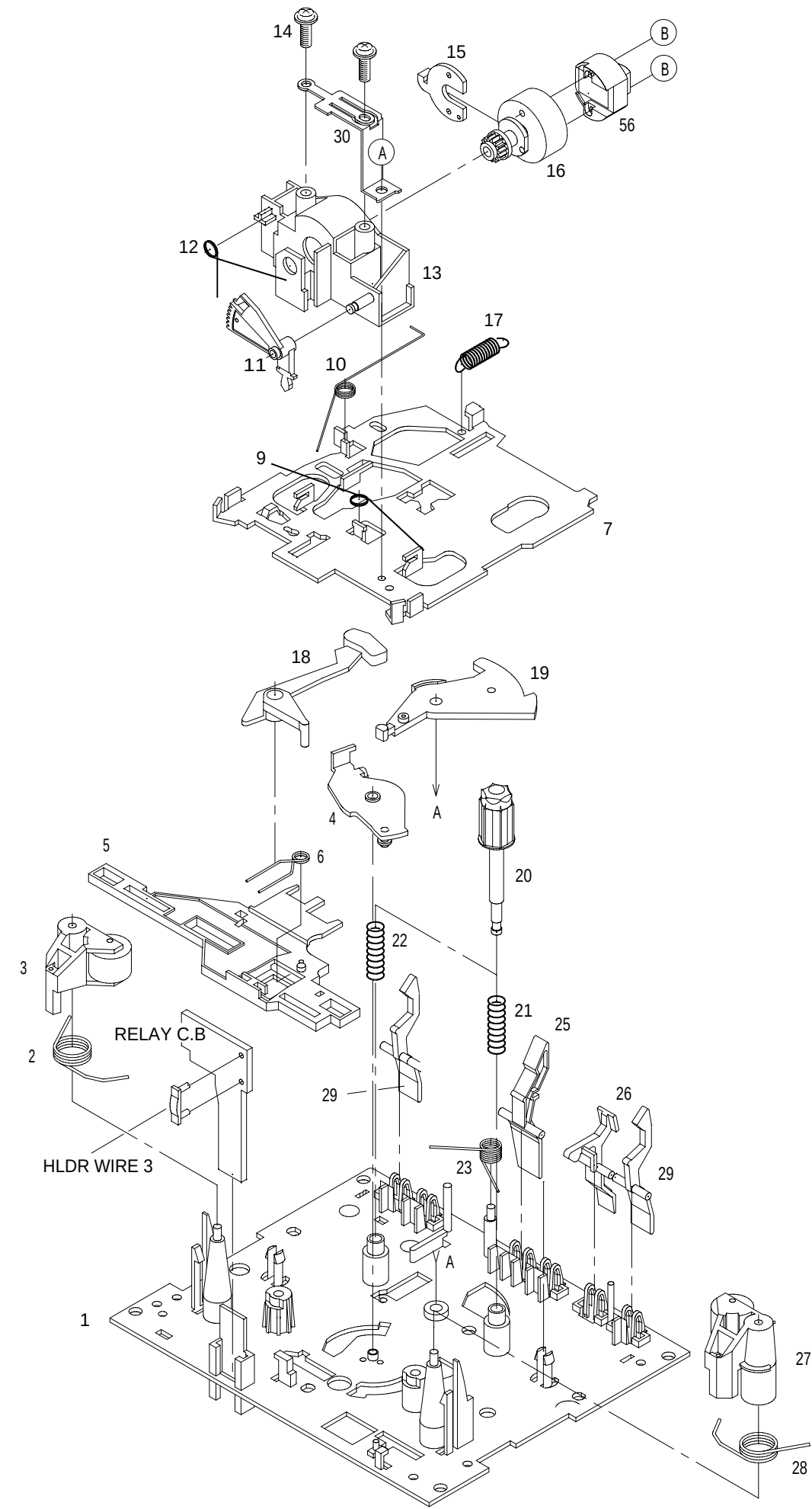
REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	8Z-CK3-007-010		PANEL, CD	36	8Z-CK3-220-010		COVER, FFC
2	8Z-CK3-004-010		PANEL, MD	37	8Z-CK3-009-010		BOX, CASS
3	8Z-CK3-012-010		LENS, SENSOR	38	8Z-CK3-208-010		COVER, PWB
4	8Z-CK3-003-010		PANEL, CONT	39	87-043-116-010		ANT, WHIP
5	8Z-CK3-024-010		LID, MD	40	8Z-CK3-201-010		HLDR, VFD
6	8Z-CK3-221-010		SPR-T, FLAP	41	8Z-CK3-002-010		CABI, REAR
7	88-CT4-026-010		CUSH, FOOT	42	8Z-CK3-230-010		COVER, HT SINK
8	8Z-CK3-031-010		CABI, FRONT ASSY	43	8Z-CK3-615-010		CONN ASSY, 8P V WHT DECK
9	82-NE6-067-010		BADGE, AIWA 30N	44	8Z-CK3-010-010		HLDR, CASS
10	8Z-CK3-008-010		WINDOW, DISP	45	88-CT4-226-010		HLDR, OIL DUMP
11	8Z-CK3-006-010		PANEL, DISP	46	88-CT4-225-010		GEAR, OIL DUMP
12	8Z-CK3-005-010		PANEL, CASS	47	8Z-CK3-209-010		LEVER, CASS
13	8Z-CK3-223-010		SPR-C, CASS	48	8Z-CK3-210-010		SPR-P, ANT
14	8Z-CK3-020-010		KEY, CASS	49	82-ZM1-264-010		LVR, EJECT R
15	8Z-CK3-205-010		HLDR, MD	50	87-064-185-010		HLDR, WIRE
16	8Z-CK3-609-010		FF-CABLE, 14P 1.0 200MM	51	8Z-CK3-225-010		COVER, REAR
17	8Z-CK3-610-010		FF-CABLE, 8P 1.0 200MM	52	8Z-CK3-013-010		COVER, CABI REAR
18	88-CD2-602-110		SPKR, F 8CM 60HM	A	87-067-020-010		SCREW, VTT+3-4
19	8Z-CK3-206-010		HLDR, SPKR	B	87-067-703-010		TAPPING SCREW, BVT2+3-10
20	8Z-CK3-627-010		VIB, PIEZO 4KHZ	C	87-067-758-010		BVT2+3-12 W/O SLOT
21	8Z-CK3-207-010		COVER, SPKR	D	87-254-097-410		U+3-12 CR
22	8Z-CK3-019-010		KEY, REC	E	87-078-061-010		VFT2+3-20DIA10, GLD
23	8Z-CK3-018-010		KEY, POWER	F	87-761-097-410		VFT2+3-10 GLD
24	8Z-CK3-022-010		LENS, POWER	G	87-741-073-410		UT 2+2.6-6 GLD
25	8Z-CK3-011-010		LENS, FUNC	H	87-081-512-010		VTT+3-8
26	8Z-CK3-017-010		KEY, CONT	I	87-067-698-010		BVT2+3-18(W/O, SLOT)
27	8Z-CK3-204-010		HLDR, CD R				
28	8Z-CK3-612-010		FF-CABLE, 6P 1.25 250MM				
29	8Z-CK3-608-010		FF-CABLE, 16P 1.0 250MM				
30	8Z-CK3-611-010		FF-CABLE, 5P 1.25 150MM				
31	8Z-CK3-203-010		HLDR, CD L				
32	8Z-CK3-021-010		KNOB, RTRY JOG				
33	8Z-CK3-202-010		HLDR, LED				
34	8Z-CK3-613-010		FF-CABLE, 9P 1.25 200MM				
35	8Z-CK3-212-010		SPR-T, CASS				

COLOR NAME TABLE

Basic color symbol	Color	Basic color symbol	Color	Basic color symbol	Color
B	Black	C	Cream	D	Orange
G	Green	H	Gray	L	Blue
LT	Transparent Blue	N	Gold	P	Pink
R	Red	S	Silver	ST	Titan Silver
T	Brown	V	Violet	W	White
WT	Transparent White	Y	Yellow	YT	Transparent Yellow
LM	Metallic Blue	LL	Light Blue	GT	Transparent Green
LD	Dark Blue	DT	Transparent Orange		



TAPE MECHANISM EXPLODED VIEW 1/1

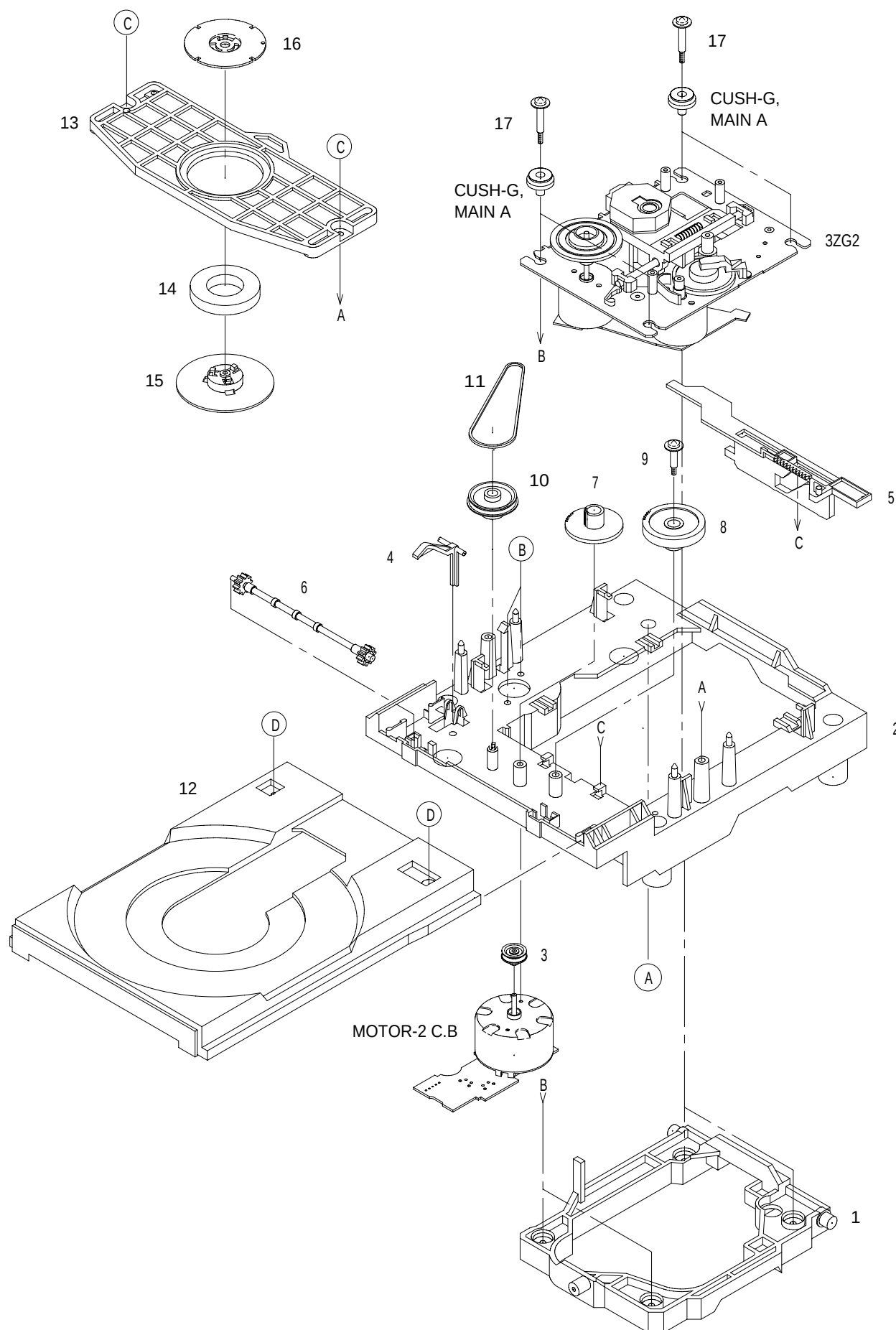


TAPE MECHANISM PARTS LIST 1/1

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	82-ZM1-327-210		CHAS ASSY,RN	33	82-ZM1-227-210		LVR, TRIG
2	82-ZM1-258-010		SPR-T, PINCH L	34	82-ZM1-224-410		LVR, FR
3	82-ZM1-341-010		LVR ASSY, PINCH L 2	35	86-ZM4-201-010		SPR-E, TRIG 3
4	82-ZM1-295-310		PLATE ASSY, LINK	36	82-ZM1-239-010		CAPSTAN 2.2-41.7
5	82-ZM1-266-110		LVR, DIR	37	82-ZM1-223-010		GEAR, PLAY
6	82-ZM1-214-010		SPR-T, DIR	38	82-ZM1-322-010		SPR-T, FR 60
7	82-ZM1-206-810		CHAS, HEAD	39	82-ZM1-220-210		GEAR, IDLER
9	82-ZM1-269-210		SPR-T, BRG	40	82-ZM3-616-010		RING MAGNET 4
10	82-ZM3-323-010		SPR-T, LINK 3	41	82-ZM1-216-310		GEAR, REEL
11	82-ZM1-210-110		GEAR, H T	42	82-ZM1-236-010		CAPSTAN, 2-41.5
12	82-ZM1-213-010		SPR-T, HEAD	43	82-ZM1-225-010		GEAR, FR
13	82-ZM1-207-610		GUIDE, TAPE	44	82-ZM1-226-010		GEAR, REW
14	82-ZM1-283-310		S-SCREW, AZIMUTH	45	82-ZM3-333-210		SLIP DISK ASSY 2
15	82-ZM1-314-119		PLATE, HEAD	46	82-ZM1-338-010		BELT, FR 4
16	82-ZM1-208-110		HLDR, HEAD	47	82-ZM1-349-010		FLY-WHL, RH
17	82-ZM1-218-010		SPR-E, HB	48	82-ZM1-348-010		FLY-WHL, LW
18	82-ZM1-263-110		LVR, EJECT	49	82-ZM1-351-010		BELT, MAIN R7
19	82-ZM1-222-210		LVR, PLAY	50	82-ZM1-245-210		HLDR, IC
20	82-ZM1-217-310		REEL TABLE	51	82-ZM1-350-010		HOLDR, MOTOR R7
21	82-ZM1-244-510		SPR-C, BT	52	82-ZM1-247-110		PULLEY, MOTOR
22	82-ZM1-285-410		SPR-C, BT L	53	82-ZM1-288-010		SH, 1.63-3.2-0.5 SLT
23	82-ZM1-257-010		SPR-T, CAS	54	80-ZM6-243-010		SH, 1.75-3.6-0.5 SLT
25	82-ZM1-242-010		LVR, CAS	55	87-A90-343-010		MOT, SHU2R 70(M1)
26	82-ZM1-243-010		LVR, STOP	56	87-A90-772-110		HEAD, RPH KC9142(RPH)
27	82-ZM1-344-010		LVR ASSY, PINCH R	A	82-ZM1-315-010		S-SCREW, GUIDE TAPE
28	82-ZM1-259-110		SPR-T, PINCH R	B	80-ZM6-207-010		V+1.6-7
29	82-ZM1-240-110		LVR, REC	C	87-251-070-410		U+2.6-3
30	82-ZM1-298-010		SPR-P, EARTH	D	87-741-073-410		UT2+2.6-6 GLD
31	82-ZM1-255-310		SPR-E, LVR DIR	E	87-B10-008-010		PW, 2.15-6.8-0.4 SLT
32	82-ZM1-221-110		GEAR, CAM	F	82-ZM3-334-010		PW, 2.16-6-0.4

CD MECHANISM EXPLODED VIEW 1/2

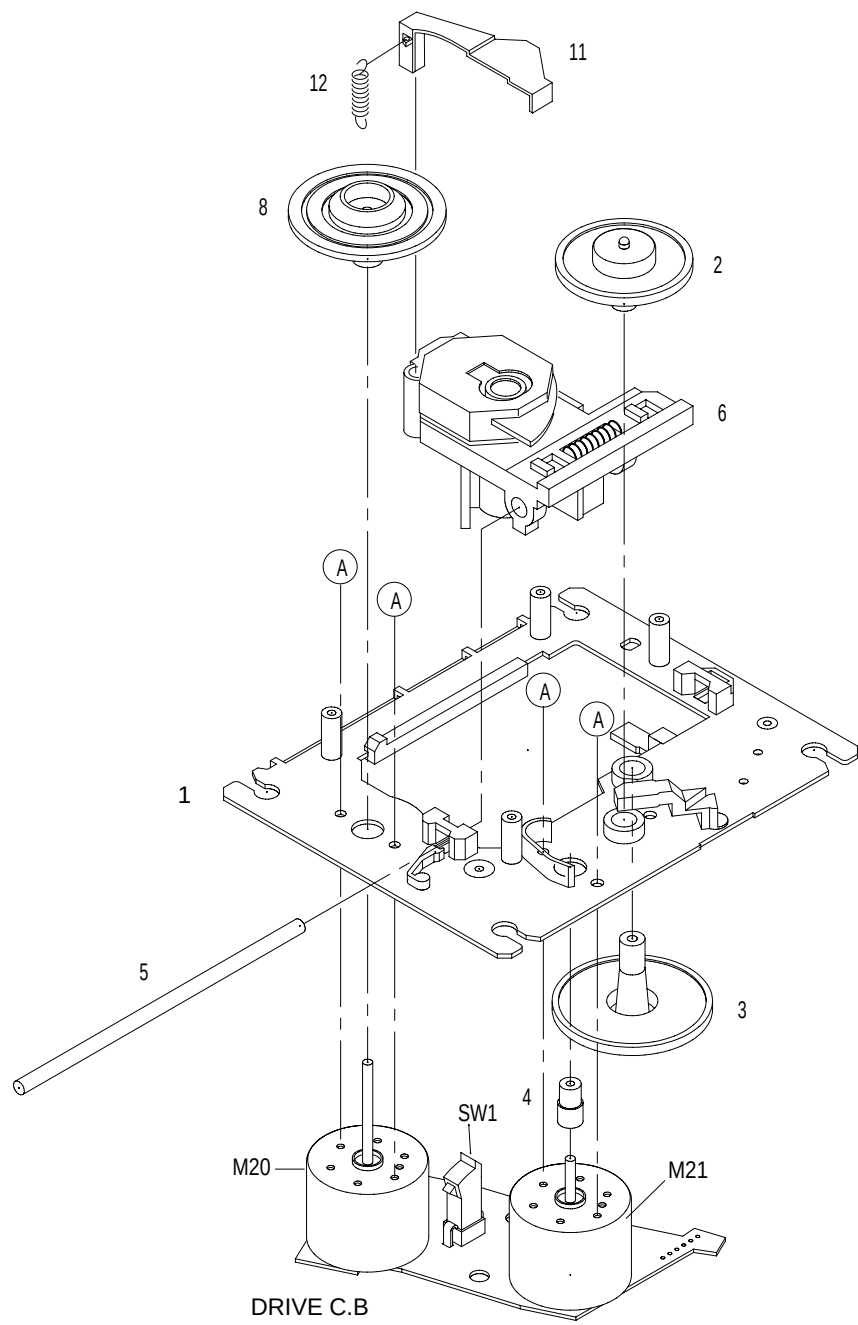


CD MECHANISM PARTS LIST 1/2

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
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REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	83-ZG3-224-310		HLDR, M2	16	83-ZG3-211-010		PLATE, DISC
2	83-ZG3-228-610		CHAS, L6	17	81-ZG1-254-010		S-SCEW, MECH HLDR
3	83-ZG3-208-010		PULLEY, MOTOR	A	87-067-945-110		VFT2+3-12(F10)
4	83-ZG3-213-010		LVR, SW	B	87-251-071-110		U+2.6-4
5	83-ZG3-209-610		CAM, SLIDE	C	87-512-074-210		VFT2+2.6-8
6	83-ZG3-207-010		GEAR, TRAY	D	87-352-075-210		VT2+2.6-10
7	83-ZG3-204-210		GEAR, C				
8	83-ZG3-205-010		GEAR, D				
9	83-ZG3-217-010		S-SCREW, GEAR D				
10	83-ZG3-220-210		GEAR, PULLEY 2				
11	83-ZG3-214-010		BELT, L				
12	83-ZG3-229-410		TRAY, CD 2				
13	83-ZG3-210-110		HLDR, CHUCK				
14	83-ZG3-602-010		RING, MAG				
15	83-ZG3-212-010		CAP, DISC				

CD MECHANISM EXPLODED VIEW 2/2

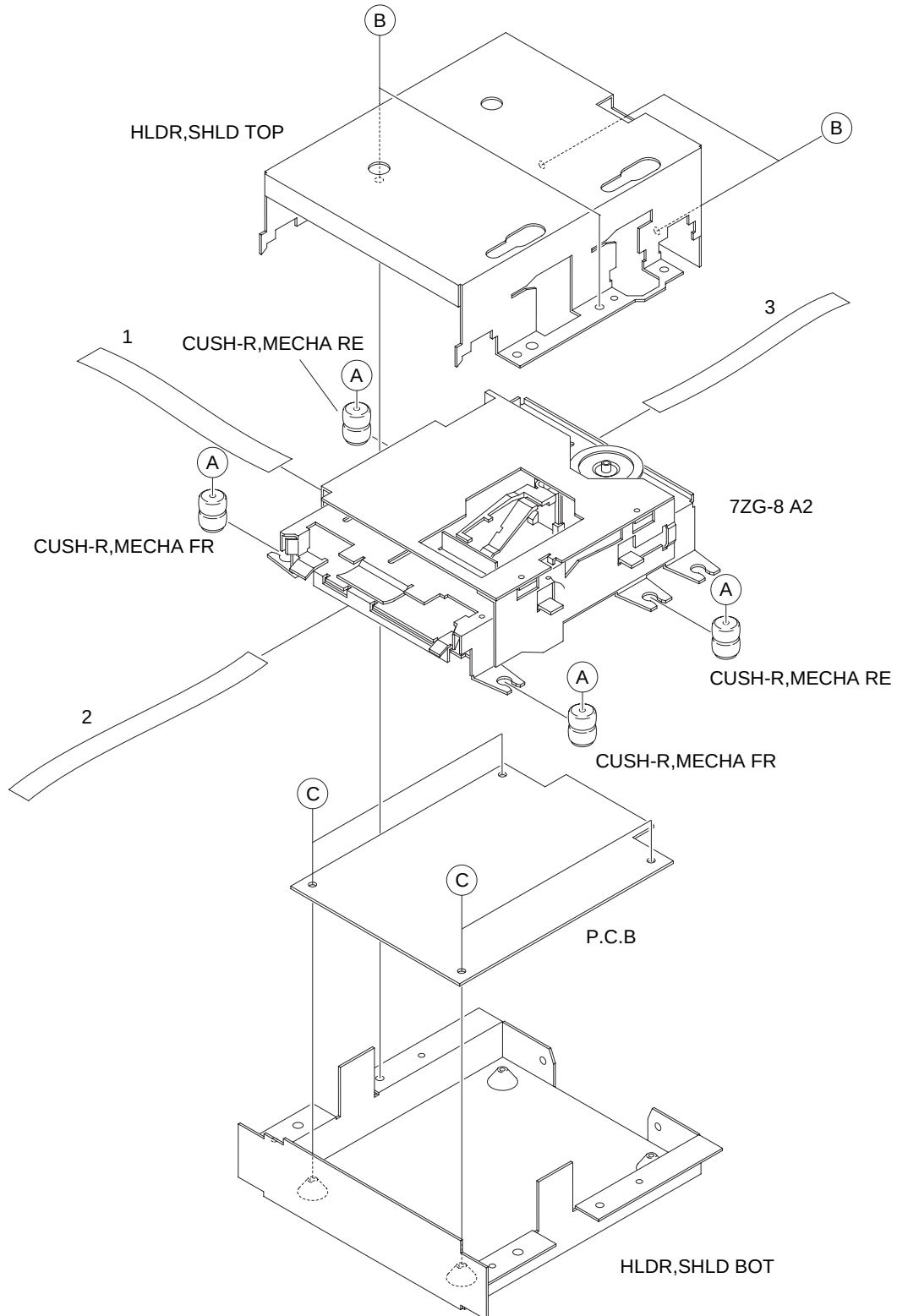


CD MECHANISM PARTS LIST 2/2

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	83-ZG2-243-110		CHAS ASSY, SHT
2	83-ZG2-235-010		GEAR, A3
3	83-ZG2-205-210		GEAR, B
4	83-ZG2-236-010		GEAR MOTOR 3
5	83-ZG2-240-010		SHAFT, SLIDE 3
6	87-A90-836-010		PICKUP, KSS-213F
8	83-ZG2-233-010		TURN TABLE, A5
11	83-ZG2-245-110		LEVER, SHUTTER
12	83-ZG2-250-010		SPR-E, SHT 2
A	87-261-032-210		SCREW V+2-3

MD MECHANISM EXPLODED VIEW 1/3

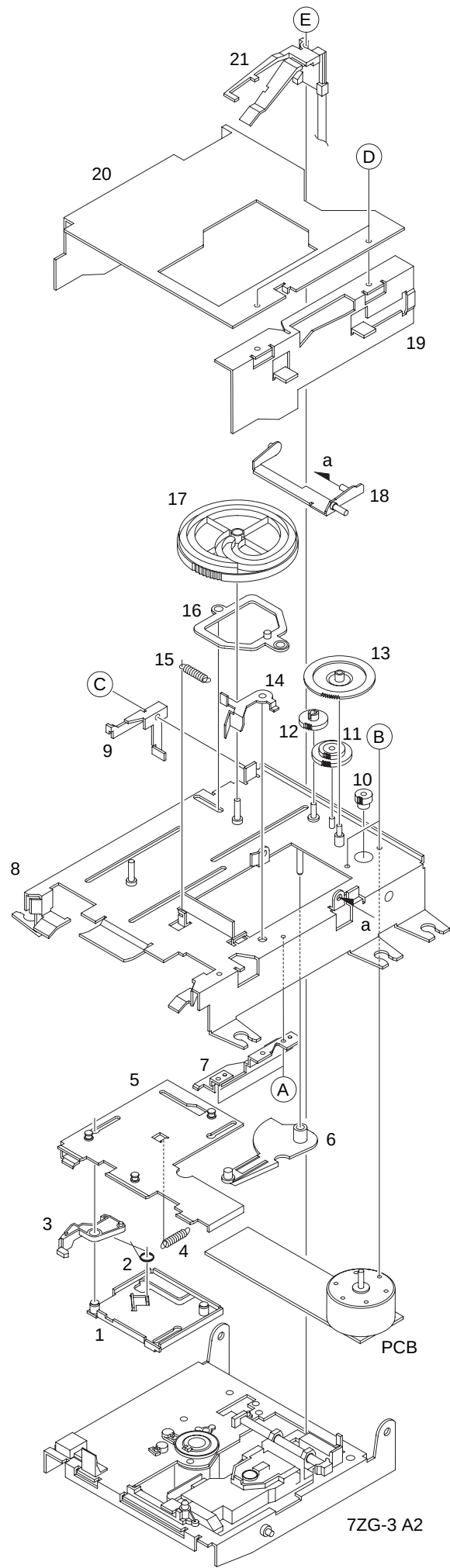


MD MECHANISM PARTS LIST 1/3

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	87-ZG9-602-010		FF-CABLE, 21P 0.5 90MM
2	87-ZG9-603-010		FF-CABLE, 8P 1.0 120MM
3	87-ZG9-604-010		FF-CABLE, 5P 1.25 100MM
A	87-ZG9-209-010		S-SCREW, MD TF
B	87-067-020-010		VTT+3-4
C	87-067-421-010		VTT+2-4

MD MECHANISM EXPLODED VIEW 2/3

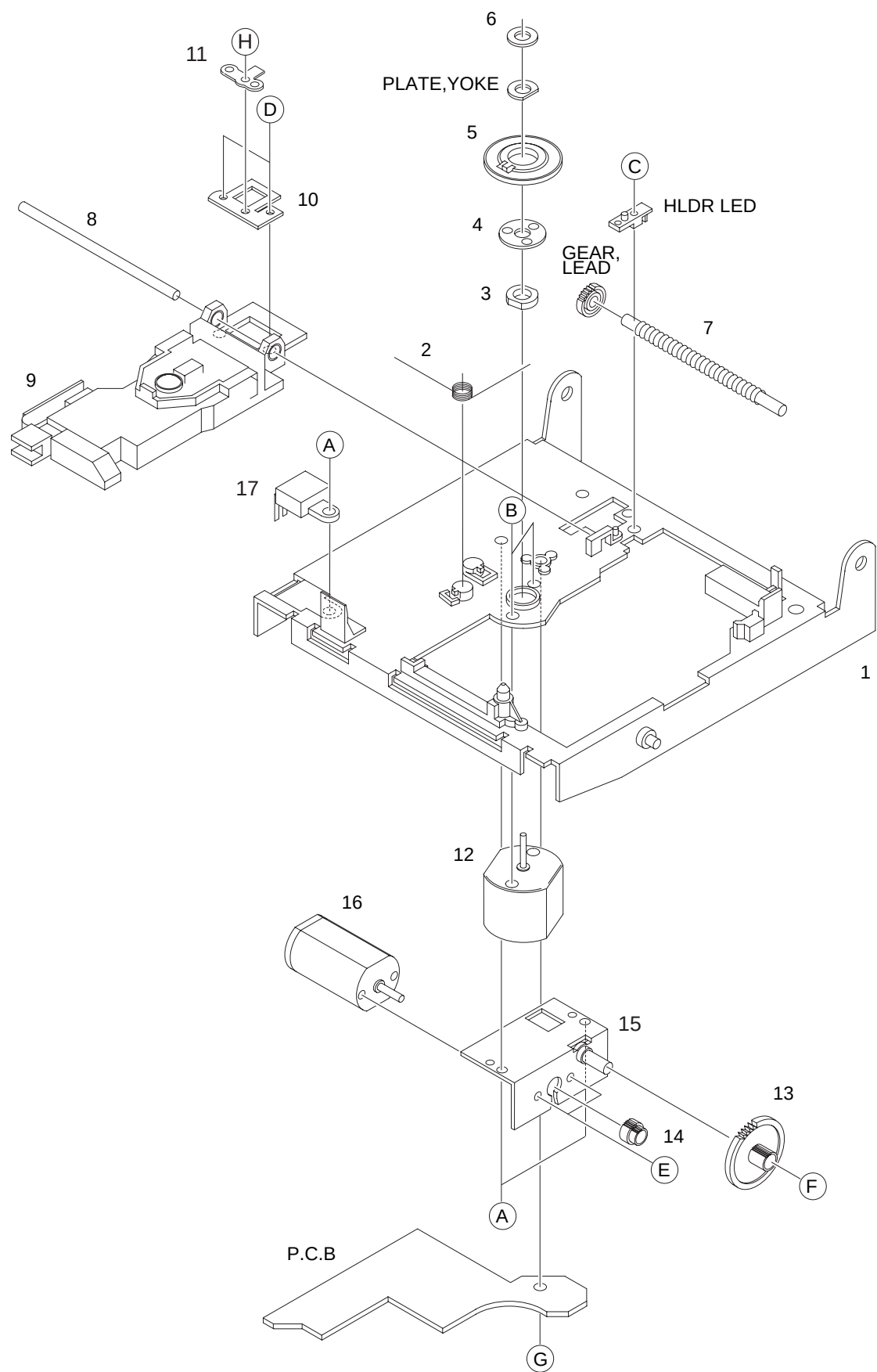


MD MECHANISM PARTS LIST 2/3

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
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REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	87-ZG8-220-110		PLATE ASSY, LATCH	16	87-ZG8-225-310		LEVER ASSY, CAM
2	87-ZG8-259-010		SPR-T, LATCH	17	87-ZG8-239-110		CAM, LOAD
3	87-ZG8-230-110		LEVER, LATCH	18	87-ZG8-257-210		LEVER ASSY, REC
4	87-ZG8-224-110		SPR-E, LATCH	19	87-ZG8-213-210		PLATE, SLIDE R
5	87-ZG8-214-210		HLDR ASSY, CARTRIGE	20	87-ZG8-209-210		PLATE ASSY, SLIDE L
6	87-ZG8-233-110		LEVER, SW H	21	87-A90-605-110		HEAD, OWH RF325-74A
7	87-ZG8-255-210		PLATE, CARTRIGE	A	87-B10-129-010		VTT+1.7-3.5 W/O MFZN2-C
8	87-ZG8-201-710		CHAS ASSY, MAIN	B	87-B10-128-010		V+1.7-2 W/O MFZN2-C
9	87-ZG8-256-110		LEVER, SW S2	C	87-B10-130-010		W-P, 1.23-3.1-0.25 SLIT
10	87-ZG8-242-010		GEAR, MOT	D	87-067-421-010		VTT+2-4
11	87-ZG8-253-010		GEAR, REDUCTION S3	E	87-B10-131-010		VW+1.7-5 W/O MFZN2C
12	87-ZG8-246-010		GEAR, IDLER 2				
13	87-ZG8-252-010		GEAR, REDUCTION L3				
14	87-ZG8-231-010		LEVER, SHUTTER				
15	87-ZG8-232-110		SPR-E, SHUTTER				

MD MECHANISM EXPLODED VIEW 3/3

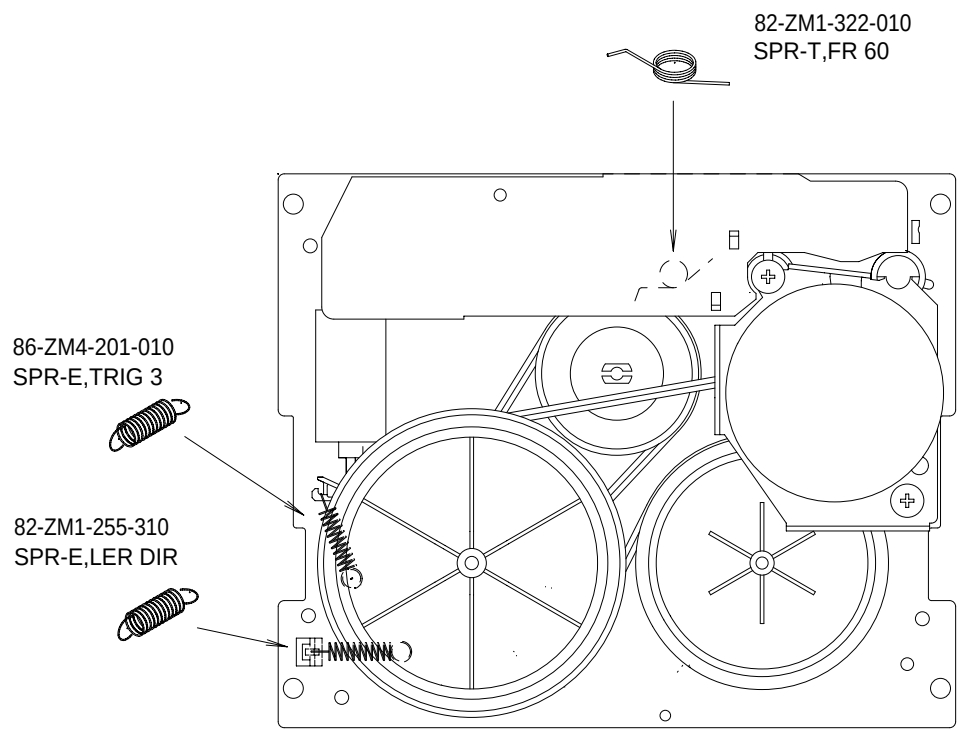
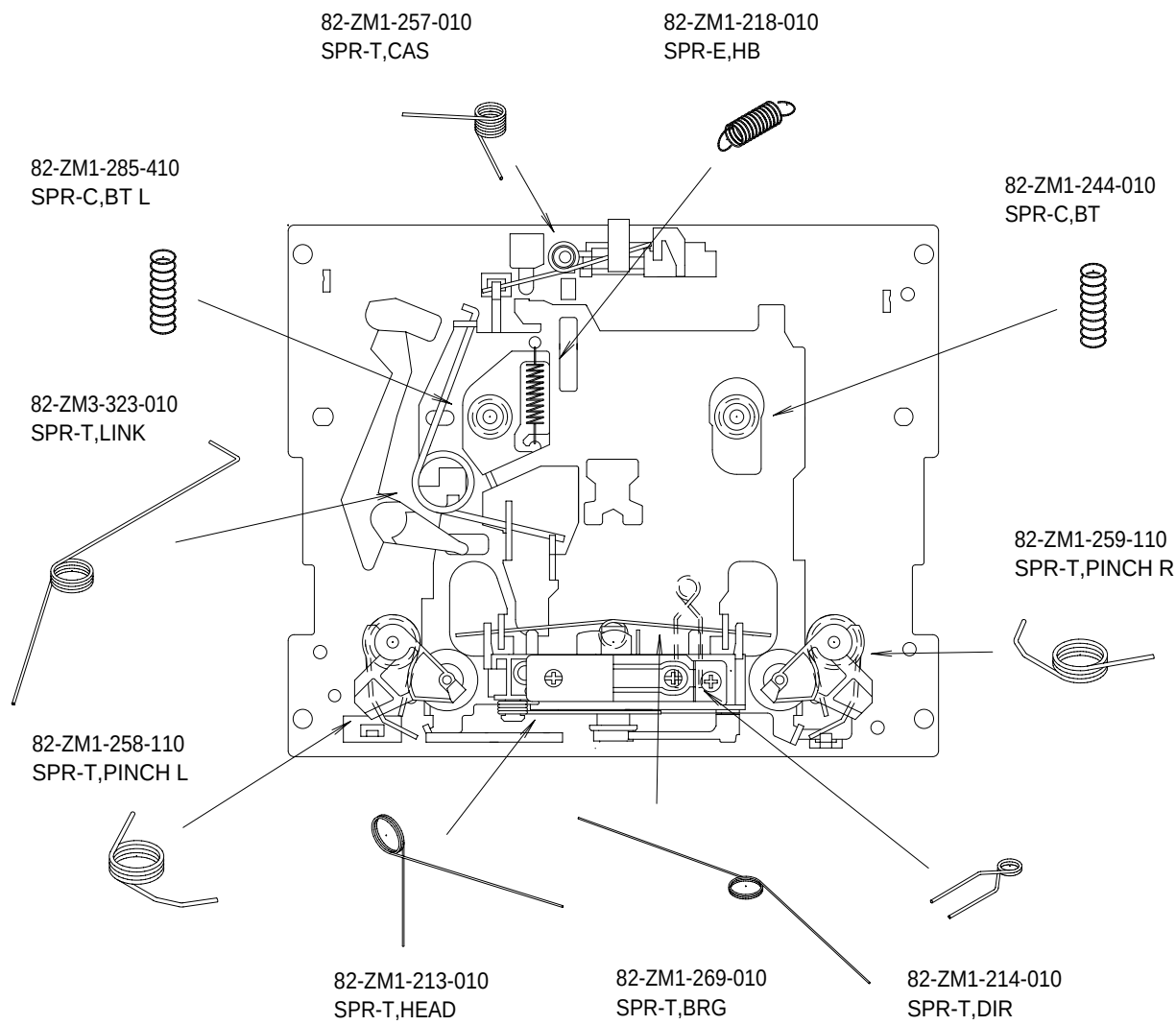


MD MECHANISM PARTS LIST 3/3

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REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	87-ZG3-202-510		CHAS ASSY,OUT-SERT	16	87-A90-616-010		MOT,FF-N30VA
2	87-ZG3-214-210		SPR-T,SPINDLE-A	17	87-A90-611-010		SW,PUSH 3-2-2 MPU20300MLB0
3	83-ZG5-308-010		BRG,1.5-2	A	87-261-547-310		V+2-3 BLK (1)
4	83-ZG5-302-110		TURN TABLE,MD1	B	87-263-523-310		SCREW, V+1.7-2
5	83-ZG5-305-210		SPR-P,DISC	C	87-261-509-310		SCREW, V+1.4-4
6	83-ZG5-605-010		MAGNET,CHUCK	D	87-067-393-010		SCREW +1.4-1.4
7	87-ZG3-212-110		SHAFT,LEAD	E	87-261-503-310		PRECISION SCREW, V+1.4-2
8	87-ZG3-211-010		SHAFT,GUIDE	F	87-078-033-010		PW 1.2-2.5-0.25 SLT
9	87-A90-613-010		PICKUP,KMS-260A	G	87-341-035-210		SCREW,UT1+2-6
10	87-ZG3-216-010		SPR-P,RACK	H	87-264-523-010		SCREW,V+1.7-2
11	87-ZG3-213-010		SPR-P,LEAD				
12	87-A90-413-010		MOT,FF-110PH 9				
13	87-ZG3-206-010		GEAR,A				
14	87-ZG3-205-010		GEAR,MOT SL				
15	87-ZG3-208-010		HLDR ASSY,MOTOR				

SPRING APPLICATION POSITION



REFERENCE NAME LIST

ELECTRICAL SECTION

DESCRIPTION	REFERENCE NAME
ANT	ANTENNAS
C-	CHIP
C-CAP	CAP, CHIP
C-CAP TN	CAP, CHIP TANTALUM
C-COIL	COIL, CHIP
C-DI	DIODE, CHIP
C-DIODE	DIODE, CHIP
C-FET	FET, CHIP
C-FOTR	FILTER, CHIP
C-JACK	JACK, CHIP
C-LED	LED, CHIP
C-RES	RES, CHIP
C-SFR	SFR, CHIP
C-SLIDE SW	SLIDE SWITCH, CHIP
C-SW	SWITCH, CHIP
C-TR	TRANSISTOR, CHIP
C-VR	VOLUME, CHIP
C-ZENER	ZENER, CHIP
CAP, CER	CAP, CERA-SOL
CAP, E	CAP, ELECT
CAP, M/F	CAP, FILM
CAP, TC	CAP, CERA-SOL
CAP, TC-U	CAP, CERA-SOL SS
CAP, TN	CAP, TANTALUM
CERA FIL	FILTER, CERAMIC
CF	FILTER, CERAMIC
DL	DELAY LINE
E/CAP	CAP, ELECT
FILT	FILTER
FLTR	FILTER
FUSE RES	RES, FUSE
MOT	MOTOR
P-DIODE	PHOTO DIODE
P-SNSR	PHOTO SENSER
P-TR	PHOTO TRANSISTOR
POLY VARI	VARIABLE CAPACITOR
PPCAP	CAP, PP
PT	POWER TRANSFORMER
PTR, RES	PTR, MELF
RC	REMOTE CONTROLLER
RES NF	RES, NON-FLAMMABLE
RESO	RESONATOR
SHLD	SHIELD
SOL	SOLENOID
SPKR	SPEAKER
SW, LVR	SWITCH, LEVER
SW, RTRY	SWITCH, ROTARY
SW, SL	SWITCH, SLIDE
TC CAP	CAP, CERA-SOL
THMS	THERMISTOR
TR	TRANSISTOR
TRIMMER	CAP, TRIMMER
TUN-CAP	VARIABLE CAPACITOR
VIB, CER	RESONATOR, CERAMIC
VIB, XTAL	RESONATOR, CRYSTAL
VR	VOLUME
ZENER	DIODE, ZENER

MECHANICAL SECTION

DESCRIPTION	REFERENCE NAME
ADHESHIVE	SHEET ADHESHIVE
AZ	AZIMUTH
BAR-ANT	BAR-ANTENNA
BAT	BATTERY
BATT	BATTERY
BRG	BEARING
BTN	BUTTON
CAB	CABINET
CASS	CASSETTE
CHAS	CHASSIS
CLR	COLLAR
CONT	CONTROL
CRSR	CURSOR
CU	CUSHION
CUSH	CUSHION
DIR	DIRECTION
DUBB	DUBBING
FL	FRONT LOADING
FLY-WHL	FLYWHEEL
FR	FRONT
FUN	FUNCTION
G-CU	G-CUSHION
HDL	HANDOL
HIMERON	CLOTH
HINGE, BAT	HINGE, BATTERY
HLDR	HOLDER
HT-SINK	HEAT SINK
IB	INSTRUCTION BOOKLET
IDLE	IDLER
IND, L-R	INDICATOR, L-R
KEY, CONT	KEY, CONTROL
KEY, PRGM	KEY, PROGRAM
KNOB, SL	KNOB, SLIDE
LBL	LABEL
LID, BATT	LID, BATTERY
LID, CASS	LID, CASSETTE
LVR	LEVER
P-SP	P-SPRING
PANEL, CONT	PANEL, CONTROL
PANEL, FR	PANEL, FRONT
PRGM	PROGRAM
PULLY, LOAD MO	PULLY, LOAD MOTOR
RBN	RIBBON
S-	SPECIAL
SEG	SEGMENT
SH	SHEET
SHLD-SH	SHIELD-SHEET
SL	SLIDE
SP	SPRING
SP-SCREW	SPECIAL-SCREW
SPACER, BAT	SPACER, BATTERY
SPR	SPRING
SPR-P	P-SPRING
SPR-PC-PUSH	P-SPRING, C-PUSH
T-SP	T-SPRING
TERM	TERMINAL
TRIG	TRIGGER
TUN	TUNING
VOL	VOLUME
W	WASHER
WHL	WHEEL
WORM-WHL	WORM-WHEEL



サービス技術ニュース	
番号	連絡内容
Gー ー	
Gー ー	
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アイワ株式会社 〒110-8710 東京都台東区池之端1-2-11 ☎03(3827)3111（代表）
AIWA CO.,LTD. 2-11, IKENOHATA 1-CHOME, TAITO-KU, TOKYO 110-8710, JAPAN TEL:03 (3827) 3111